Public Works (1905.) Department

G.O., No. 45 } I
46 }

DATED 19th January 1905.

100 — copies of G.O.
8 copies of Estt with
22 copies (docket at the back
for the G. of I.
30 copies of Estt for records

24/1/05

[Despatch Abstract.]

Sluice in front of the existing head sluice, Periyar Project.

An estimate, amounting to Rs 39,360, for constructing a ——— approved, and a copy of the Pros. together with plans and estimates for the sluice ordered to be forwarded to the Government of India for sanction.

Sluice in front of the existing head sluice, Periyar Project.

Approving the estimate, amounting to Rs 39,360, for constructing a ——— and forwarding a copy of the Pros: together with plans and estimates for the sluice to the G. of I. for sanction.

P. W. 28. 1,300—13-7-04.

Recd 21/1/05

BACK PAPER

G.O.	No.	Department.	Date.	G.O.	N

FURTHER PAP

G.O.	No.	Department.	Date.	G.O.	No

IRRIGATION.
ACCOUNT.

Government {1905} of Madras.
PUBLIC WORKS.

Recd.	1905.	*Enclosures*	
Regd.		*Spare copies*	

G.O., Nos. 45, 46 I., 19th January 1905.

JANUARY.

Sluice in front of the existing head sluice, Periyar Project

Approving an estimate, amounting to Rs. 39,360, for constructing a — and forwarding a copy of the Proceedings together with plans and estimates for the sluice to the Government of India for sanction.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

READ—the following papers:—

From the Superintending Engineer, VI Circle, dated	26th October 1903,	No. 851 M.D.		
To the "	VI " "	3rd November "		
To Messrs. Ransomes and Rapier, dated 17th February 1904, No. 519.				
From the Superintending Engineer, VI Circle, dated	17th February 1904,	No. 158 C.E.		
To the "	VI " "	24th "	" "	597.
To the "	VI " "	29th "	" "	642.
From Messrs. Ransomes and Rapier, dated 10th March 1904.				
From the Superintending Engineer, VI Circle, dated	28th March 1904,	No. 156 E.I.		
To the "	VI " "	1st April 1904,	No.	1126.
From the "	V " "	28th Mar.	" "	156 E.I.
To the Superintending Engineer,	VI Circle, dated	7th April	" "	1219.
From the "	VI " "	12th "	" "	300 C.E.
To the "	VI " "	22nd "	" "	1397.
From the General Supdt., P.W. Workshops	"	25th "	" "	W./6 C.I.
From the " " "	"	25th "	" "	W./7 C.I.
To the " " "	"	28th "	" "	1488.
From the Superintending Engineer, VI Circle	"	28th "	" "	332 C.E.
To the "	VI " "	10th May	" "	19/O.
To Messrs. Ransomes and Rapier, dated 25th May 1904, No. 40/O.				
From the Superintending Engineer, VI Circle, dated	9th June 1904,	No. 431 C.E.		
From the "	VI " "	11th July	" "	498 C.E.
To the "	VI " "	15th "	" "	147/O.
To the General Supdt., P.W. Workshops	"	25th "	" "	2466.
To the Superintending Engineer, VI Circle	"	25th "	" "	2467.
From the "	VI " "	5th Aug.	" "	567 C.E.
From the General Supdt., P.W. Workshops	"	6th "	" "	W./30 E.I.
To the " " "	"	19th "	" "	2769.
From the " " "	"	27th Oct.	" "	W./36 E.I.
From the Superintending Engineer, VI Circle	"	31st "	" "	802 C.E.
To the "	VI " "	3rd Nov.	" "	3706.
From the "	VI " "	4th "	" "	816 C.E.
From the General Supdt., P.W. Workshops	"	10th Jan. 1905	"	W/46 E.I.

Note by the Chief Engineer for Irrigation.

In the Inspection notes of the Chief Engineer for Irrigation printed with G.O., No. 306 I., dated 19th March 1904, it was pointed out that it was absolutely necessary to have it in our power to carry out without delay any repairs that might be required to the gate or lifting gear of the Periyár head sluice.

2. In consequence of the failure of one of the ropes carrying the roller frame, the supply through the sluice was interfered with for ten days in October 1903, and if this accident had occurred early in the season it would have been far more serious. The failure of the counterweight ropes might have most disastrous results, and it is high time that something was done to make the position one of greater security.

3. Several methods of effecting this have been considered, and Messrs. Ransomes and Rapier who designed the head sluice and gate, have been consulted.

4. They admit that with the great head to be dealt with it would be impossible, with the sluice discharging, to insert a temporary shutter in the groove provided for the purpose.

5. Closing the water-shed cutting by a caisson was then thought of and an estimate prepared, likewise the erection of steel towers on either side of the cutting, from which a lift gate could be worked. Ultimately it was decided that the cheapest and most effective arrangement would be to build another sluice in front of the existing one. The new sluice would be of exactly the same design as the existing one and would be fitted with a gate after Stoney's pattern made in the Public Works Workshops.

6. The present sluice designed by Messrs. Ransomes and Rapier was calculated to take water pressure with lake level at 155·00. Although we are going to raise F.T.L. by 8 feet, the M.W.L. (155·00) will not be raised. On the contrary with the powerful escape to be built, the lake level is not likely to rise to 155·00. The new sluice and gate therefore are of ample strength.

7. An estimate, amounting to Rs. 32,000, for the sluice and gate is submitted. It is recommended that it may be approved and forwarded to the Government of India, who may be requested to communicate their sanction by wire. If the work can be started at once it is hoped that the new sluice and gate might be completed during the next closure. The Superintending Engineer, II Circle, has recently surrendered a sum of Rs. 79,000 from the grant under "49" for the Kistna delta. A portion of this amount can be transferred to meet the outlay on this work during the current year.

8. The work is classed as "unremunerative" and will probably be completed by the 31st March 1906.

19th January 1905.

(Signed) A. H. GARRETT,
Chief Engineer for Irrigation.

ORDER—No. 45 I., dated 19th January 1905.

The estimate, amounting to Rs. 32,000 or Rs. 39,360 including the charge for establishment, for constructing a sluice in front of the existing head sluice, Periyár project is approved.

2. Ordered that a copy of these Proceedings together with plans and estimates for the sluice be forwarded to the Government of India with a request that sanction thereto may be communicated by wire.

[Here enter No. 46 I., dated 19th January 1905.]

(True Extract.)

(Signed) A. H. GARRETT,
Joint Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation.
" Superintending Engineer, VI Circle.
" Examiner, Public Works Accounts.
" General Superintendent, Public Works Workshops.

ENDORSEMENT—No. 46 I., dated 19th January 1905.

Forwarded.

(By order.)

(Signed) A. H GARRETT,
Joint Secretary to Government,
Irrigation Branch.

Exd. V. Ramachendra Rao.

3,000—30-7-01.

Public Works (1903) Department.

CURRENT No. 107 IrD

From

[Name] C. J. Ussher Esquire

[Designation] Superintending Engineer. VI Circle

[Station] Inchingo Eg.

E.S.

The S.E.s orders may be approved.
The extra weighting the counterweight may account for the difficulty experienced in closing the ~~sluice~~ shutter

Rc No. 851 IrD

Received 29/10/03 ~~28~~ 10 1903.

Dated 26th Octr 03 190 .

Despd 27

Registered 28 10 1903.

Enclosures { Plans 2 / Others .. } Total 2

Spare copies

Es. I hope to inspect the work after Xmas, when these papers should be given me.

SUBJECT.

Stoney's patent shutter in the Head sluice of Periyar. 29/10/03
Reports on the inspection of the —— and forwards two plans.

CE

Detail plan please as erected 28

D.E.I. Please see tracing herewith?

D.E.I.

BACK PAPERS.

Plwe 1 / 711/5	28/10/03 E.I.

FURTHER PAPERS.

Please see paper Plans H. Serial 55	28/10/03

28/10

2

To

The Chief Engineer / Secretary to Government, Public Works Department.

Sir,

Copy of a communication No.583-S.E. dated 24th October 1903, from M.R.Ry, A.V.Ramalinga Iyer Avergal, B.A. B.C.E., Executive Engineer, Madura Division, to the Superintending Engineer, VI Circle, Trichinopoly.

I have the honor to report that I inspected the -- Stoney's sluice gate at Thekady on the 14th & 15th instants and I found that while the gates are raised by 3'-1" the roller frame rests on the cill of the sluice itself. I send herewith a sketch No.I showing the position of - the shutter and the roller frame as I found it. Sketch No.2 shows the position of the same when the gate is shut and No.3 when the gate is opened fully. It is clear -- from the above sketches that the wire ropes are attached at one end to a fly plate fixed to the top of the shutter and at the other end to a shackle plate fixed to the girder in rear of the roller frame built into the masonry. The ropes pass through the guide pullies attached to the roller frame on each side. The above arrangement is probably intended to make the rollers move uniformly and ~~ø~~ quickly, thereby diminishing friction when the shutter is worked and to prevent the roller frame work from being exposed to the violent action of water when the shutter is opened. These roller wire ropes are broken and hence the frame work is in the position now found. The exact length of ropes originally used is not known but from - the measurements taken by me I calculate that it should be 10' 3" which agrees closely with that obtained from the plans recently sent by you. You will see from sketch No.3 that with this length the shutter can be raised -- fully. I believe the ropes must have broken in this -- case from insufficient strength of the ropes in lifting the roller frame when the shutter is raised. I would - suggest that stronger ropes should be used by replacing both the guide pullies so as to carry 1¼" roping, but as it is not now possible to do so, I have written to -

Pwe2
711/5

the General Superintendent to send $\frac{3}{4}$" diameter ropes 10' 3" long and I believe there must be no difficulty in replacing them. Should there be any difficulty in doing so, a ring -- bund will have to be put in the level part of the watershed - cutting during next closure. The sluice gate can also be then carefully examined.

The counterweight rope was originally $1\frac{1}{4}$" diameter and - has now stretched to 1 1/8". From the portion that can be - seen, the ropes appear all right but the shackles and the -- portion of rope under water could not be seen and their present condition is not known.

I find at present that it is very easy to raise the shutter but difficult to close it. I calculate the counterweight to be 9 tons and the total weight of the shutter and the roller frame work to be lifted is $10\frac{1}{2}$ tons. Messrs. Ransomes and Rapier have specified that the counterweight should be 2/3 of the -- weight of shutter i.e. 7 tons.

RC No. 851/md Encls. 2 drawings. (Sent separately).

Copy forwarded to the Chief Engineer, for Irrigation, - for information together with the drawings (to be kindly returned).

The Executive Engineer has been requested to lose no time in replacing the broken steel wire ropes of the roller frame, and he has also been requested to at once reduce the shutter counterweight so that its weight may approximate to that specified by the manufacturers.

Supg: Engineer's Office,
VI Circle,
Dated 26th October 03.

Superintending Engineer,
VI Circle.

26.10.03

R 107 md/03

5

118.0 of 03

PUBLIC WORKS DEPARTMENT

IRRIGATION BRANCH.

No. 66 M.D. d/ 3.11.03.

Memo

With reference to his Endt. ~~No~~ R.C. No. 851 M.D. dated 26th Oct. 1903, the S.E. VI Circle is informed that the instructions issued by him to the Ex. Eng. Madura D., regarding the replacement of the broken steel wire ropes of the roller frame and the reduction of the weight of the counterweight are approved. The undersigned hopes to inspect the work after Christmas.

Encs. 2 drawings

2. The drawings received are herewith returned, they should be produced at the time of inspection

[signature]

3/11/03

Despd. 4.11.03.

To The S.E. VI Circle.

[initials]

[illegible]

2.11.03

6

107/WB

Plate 3
7/1/75

No 519
17. 2. 04.

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

Periyar Head Sluice

~~C. No.~~

From ~~No. , dated~~

Gentlemen,

From the ~~description~~ specification & design (No 10275) of the Periyar Head Sluice forwarded with your letter dated 5/3/97, it is noticed that "on the upstream side a groove is provided for a temporary-door". The work was carried out in accordance with your design.

Flag X with the Stock file below.

I should be much obliged if you would let me know how you intended that a temporary door should be inserted, against a head of 40 ft or more.

Desptd
17. 2. 04.

I am led to make this enquiry as in Novr. last one of the wire ropes carrying the roller frame broke, & the supply for irrigation was interfered with for 10 days. Had any of the counterweight ropes failed the matter would have been far more serious, & unless it is

INDEXED.

16

possible to close the sluice by an outer gate an accident might happen to which would ~~necessitate~~ make it ~~the~~ necessary to blow up the sluice rather than lose the ropes under it.

I should also be glad to know what the life of the wire ropes usually is, under ordinary wear & tear, & whether it would not be ~~preferable~~ better to substitute chains for the wire ropes

I remain, etc.

W.S.C.
17/2/00

Messrs. Ransomes & Rapier Ltd
32 Victoria St.
London S.W.

W.S.?

Typist
This must go off by this week's Mail, without fail –
W.S.C.
17/2/00.

Posted
7/1/5

Stock Form No. 154
5,000—21-7-03.

9

Public Works (1904) Department.

CURRENT No. 667

From

[Name] C. J. U S S H E R Esquire.,

[Designation] Superintending Engineer, VI Circle,

[Station] Trichinopoly.

No. 158 C.E.

Dated 17th February 1904. Dep 18-2-

Enclosures { Plans / Others } Total. Nil

Spare copies

Received 20. 2. 1904.

Registered 20. 2. 1904.

Passed on, by—

Registering Clerk 190 .

U. R. Clerk 190 .

Referencer 190 .

Record Supdt. 190 .

Drafting Officer 190 .

SUBJECT.

Wire rope &c. at Periyar Head works - Requesting to be informed of [illegible] who is to make enquiry regarding the —

DES forwarding the S.E. may be informed that Messrs Ransome and Rapier have been addressed

BACK PAPERS.

4055-O/12-2-04

PWC 5 7/11/5

20/2/04

Yes, put up papers.

20/2/04

FURTHER PAPERS.

10

To

The Chief Engineer ~~Secretary to Government~~, ~~Public Works Department.~~

For Irrigation,

MADRAS.

Sir,

With reference to your notes of inspection forwarded with your No.455 dated 12th February 1904, I have the honor to request that you will be so good as to inform me whether you intend making the enquiry regarding the wire rope etc,- (Vide your remarks against Periyar Head Works), or whether I should do so.

Put with disposed file of R669/04

I have the honor to be,

Sir,

Your most obedient servant,

Superintending Engineer,

VI Circle.

7.2.04

18

20597

Memo.

Cur. No. 667.

With reference to his letter No. 158 C.E. dated 17th February 1904, the Supg. Engineer, VI Circle, is informed that Messrs Ransomes and Rapier have been addressed by this office regarding the wire rope &c referred to therein.

[illegible]
24/2/04

Separated
Sent to S.E. with R. 1153/04 w. 28/3/04
28/3/04

Cur. No. 669 (linked file) will be submitted for orders separately, with a note

Dsp. 25.2.04

This memo may be sent the fact should not be lost sight of that new ropes or chains have to be obtained from England for the Pungar H.D. Sluice on receipt of Ransomes & Rapier's reply —
[illegible]
24/2/04

To
The Supg. Engineer, VI Circle.

[illegible]
24/2/04

INDEXED.

12

Place 6
7/1/5

E. I. Form No. 1(*a*)—500—16-5-03. (inner.)

13

Memo No. 642

Government of Madras.

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH,

Madras, 29 Feby 1904.

~~OFFICE NOTE~~ Memo.

From

To S.E. VI Circle

The undersigned has the honour to request the S.E. to submit an est for a sluice in the watershed cutting a short distance above the Pennar Head Sluice so that when repairs are required to the latter water can be shut off.

Despd 29 2 04

INDEXED

[Irrign. Form No. 22. 2,000—19-3-02.]

164

During the next closure the gearings &c of Stoney's sluice must be very carefully examined, and everything put into thorough order, so as to make the chance of an accident during the ~~waking~~ irrigation season as remote as possible.

It would be advisable for Mr. Basket to inspect the sluice and report on it before the irrigation season commences and the S.E. should arrange for this being done.

2042 A 8 29. 2. 04

Copy to the S.E. V Circle. Despd 1. 3. 04

29. 2. 04

Fair signed by D. G. on 29. 2. 04

~~Not necessary I think as Mr Baskett is also Ex. Eng. of V S.E.~~

29/2/04

DE: With reference to the concluding para. of minute orders are requested if a copy of the memo may be sent to S.E. V for the information of the General Supt. of Workshops

29/2/04

[E. I. / 5] 4,000—16-5-03.

15

Public Works (1904) Department

(IRRIGATION BRANCH).

CURRENT No. 1223

From

[*Name*] Messrs. Ransomes & Rapier - Limited

[*Designation*] Manufacturers of Hand, Steam & Electric Cranes.

[*Station*] London.

No.

Dated 10 · 3 · 1904.

Enclosures {*Plans* / *Others*} *Total*

Spare copies

Received 28 · 3 · 1904

Registered Do 1904.

SUBJECT.

Periyar Head Sluice: — Furnishes informations as to how a tempy: door should be inserted in the groove of the [illegible] with regard to the life of wire ropes &c: —

BACK PAPERS.

~~D.E.D. [illegible]~~

D. 519 - of 17 · 2 - 04

FURTHER PAPERS.

13/17

Q 1223
28.3.04

Ransomes & Rapier, Limited.

MANUFACTURERS OF HAND, STEAM & ELECTRIC CRANES, TRAVERSERS & TURNTABLES, CAPSTANS, SWITCHES & CROSSINGS, TANKS, WATER CRANES & PUMPS, BRIDGES, HYDRAULIC BUFFER STOPS, CASTINGS, CONTRACTORS & RAILWAY PLANT. WAGONS, "STONEY" SLUICES, BOILERS, COKE RAMS.

WATERSIDE IRON WORKS, IPSWICH.

TELEGRAMS; RANSOMES RAPIER, LONDON. WATERSIDE, IPSWICH.

TELEPHONES; Nº 568 WESTMINSTER. Nº 49 IPSWICH.

MANAGING DIRECTOR: WILFRID STOKES. SECRETARY: A.A. BENNETT.

32, Victoria Street, London, S.W.

March 10th. 1904.

A. H. Garrett Esq,
Chief Engineer for Irrigation,
Public Works Department,
Irrigation Branch,
Madras. India.

Dear Sir,

Periyar Head Sluice.
----------------oOo--------------

We have the honor to acknowledge the receipt of your letter of the 17th. ultimo, to which we beg to reply as follows :-

2 The upstream groove is intended to receive a temporary door, which can easily be introduced when the sluice is closed, in order that the flow of the water may be stopped and the sluice raised for examination, cleaning, and ~~repairs~~ painting. It would, of course, be impracticable to insert this temporary door against a head of 40 feet.

3 If there is a period in each year when you can completely raise the sluice for examination, the temporary door could be dispensed with, but we think that if the sluice has been at work without examination, or painting, since it was first put up, it would be wise to overhaul it at an early date.

4 With regard to the wire ropes carrying the roller frame, these should be examined from time to time and coated with a heavy mineral oil free from acid, which should be well rubbed into them by a stiff brush. With regard to their life it is very difficult to estimate this, as different waters have varying effects upon them. We should think that the time has arrived to renew them.

The

Ransomes & Rapier Limited
32 Victoria Street
London S.W.

MANUFACTURERS OF HAND, STEAM & ELECTRIC CRANES. TRAVERSERS & TURNTABLES, CAPSTANS, SWITCHES & CROSSINGS, TANKS, WATER CRANES & PUMPS, BRIDGES, HYDRAULIC BUFFER STOPS, CASTINGS, CONTRACTORS & RAILWAY PLANT, WAGONS, "STONEY" SLUICES, BOILERS, CONE FANS.

WATERSIDE IRON WORKS, IPSWICH.

TELEGRAMS: RANSOMES RAPIER, LONDON. WATERSIDE, IPSWICH.

TELEPHONES: No 568 WESTMINSTER. No 45 IPSWICH.

MANAGING DIRECTOR: WILFRID STOKES. SECRETARY: A. A. BENNETT.

MARCH 10TH. 1904.

A. H. Garrett Esq.

Chief Engineer for Irrigation,

Public Works Department,

Irrigation Branch,

Madras. Indi

Dear Sir,

Periyar Head Sluices.

-------------oOo-------------

We have the honor to acknowledge the receipt of your lette of the 17th. ultimo, to which we beg to reply as follows :-

The upstream groove is intended to receive a temporary door, which can easily be introduced when the sluice is closed, in order that the flow of the water may be stopped and the sluice raised for examination, cleaning, and repairs painting. It would, of course, be impracticable to insert this temporary door against a head of 40 feet.

If there is a period in each year when you can completely raise the sluice for examination, the temporary door could be dispen with, but we think that if the sluice has been at work without examination, or painting, since it was first put up, it would be wise to overhaul it at an early date.

With regard to the wire ropes carrying the roller frame, these should be examined from time to time and coated with a heavy mineral oil free from acid, which should be well rubbed into them by a stiff brush. With regard to their life it is very difficul to estimate this, as different waters have varying effects upon them.

5 The ropes and their attachments should most certainly be carefully examined and if they show signs of serious rusting they should be replaced. This remark also applies to the ropes for the counterbalance arrangement. As the upper end of these ropes is probably in a much better condition than the lower, they might, with advantage, be refixed end for end, more particularly if the ropes appear to be in a risky condition and you have not spare ropes to substitute promptly.

6 We have had experience with ordinary chain for suspending the roller frames, but it does not work sweetly and sometimes ~~has~~ is cut through quickly owing to movement caused by currents in the water. We do not, however, see any objection to using chains for the counterbalance suspension, if the pullies are made so as to take the chain properly.

7 In the unlikely event of one of the counterweight ropes failing, it would not be necessary to damage the sluice, as it would be a very simple matter to attach any ordinary lifting tackle to assist the sluice lifting gear.

8 Should you wish to order spare ropes and would cable us the word "Rollers" we will send out a spare pair of roller suspension ropes at once, or if you cable the word "Balance" we will send out a pair of replace balance weight ropes.

9 In connection with the temporary door, this should have a valve of some sort in it, so arranged that after the sluice gate has been examined the small sluice can be opened and a sufficient flow of water allowed to pass to more than supply the leakage past the sluice, otherwise the pressure against the face of the temporary sluice woudd be so great as to prevent its being removed.

10 The secondary sluice should be left open when the temporary door is being lowered, with a similar object.

11 If we can give you any further information, we shall be very pleased to do so on hearing from you.

We are, Dear Sir,

Yours very truly,

Q 20 1223 28-3-04

The ropes and their attachments should most certainly be carefully examined and if they show signs of serious rusting they should be replaced. This remark also applies to the ropes for the counterbalance arrangement. As the upper end of these ropes is probably in a much better condition than the lower, they might, with advantage, be refixed end for end, more particularly if the ropes appear to be in a risky condition and you have not spare ropes to substitute promptly.

We have had experience with ordinary chain for suspending the roller frames, but it does not work sweetly and sometimes is cut through quickly owing to movement caused by currents in the water. We do not, however, see any objection to using chains for the counterbalance suspension, if the pulleys are made so as to take the chain properly.

In the unlikely event of one of the counterweight ropes failing, it would not be necessary to damage the sluice, as it would be a very simple matter to attach any ordinary lifting tackle to assist the sluice lifting gear.

Should you wish to order spare ropes and would cable us the word "Rollers" we will send out a spare pair of roller suspension ropes at once, or if you cable the word "Balance" we will send out a pair of replace balance weight ropes.

In connection with the temporary door, this should have a valve of some sort in it, so arranged that after the sluice gate has been examined the small sluice can be opened and a sufficient flow of water allowed to pass to more than supply the leakage past the sluice, otherwise the pressure against the face of the temporary sluice would be so great as to prevent its being removed.

The secondary sluice should be left open when the temporary door is being lowered, with a similar object.

If we can give you any further information, we shall be very pleased to do so on hearing from you.

We are, Dear Sir,

Yours very truly,

2

Memo. No. 1126 d. 1.4.04

With reference to correspondence ending with this Office Memo No. 597 dated 24th instant, the undersigned has the honour to forward to the Supg. Engineer, VI Circle, a copy of this Office letter No. 519 dated 17th February 1904 to Messrs. Ransomes and Rapier, London, and their reply thereto in which they state that it would be impracticable to insert a temporary gate in front of the head sluice against a head of ~~of~~ 40 ft. The Supg. Engineer, VI Circle, is accordingly requested to submit at a very early ~~datek~~ date ~~the estimate for a sluice in the watershed cutting called for in Nax this Office memo No. 642 dated 29th February 1904 together with~~ a section with description of soil & subsoil of the best site selected by him for ~~the work~~ a sluice in the watershed cutting as referred to in this Office memo No 642 d 29/2/04. This section will be sent to Messrs Ransomes and Rapier to enable them to design the sluice which will no doubt have a small vent in it to keep the water at the same level on both sides when operating it.

2. It will be observed from Mr. Garrett's Notes of Inspection communicated with endorsement No. 455 dated 12th February 1904 that new ropes for the roller frame will be required. As possibly the ropes of the counterweight also require renewal the Supg. Engineer is requested to report at once whether new ropes should be ordered

for

Despd 2/4/04

Encl. 2

in the Crooked file

INDEXED.

22

for the counterweights also.

Issue
1/4/04

To the Supg. Engineer,
VI Circle.

31.3.04

5,000—18-10-02.

23

Public Works (1904) Department.

CURRENT No. 1260

From

[Name] C. H. B. Burlton Esquire

[Designation] Superintending Engineer, 5 Circle

[Station] Madras

No. 15629

Dated 28 March 1904.

Enclosures { Plans / Others } Total.

Spare copies

No. 1219 d/ 7th april 1904

Copy forwarded to the S. E. VI Circle for information in continuation of this office Memo. No. 642 d/ 29-2-04

MRK
7/4/04

Despd 9/4/04

7.4.04

Received 29 . 3 . 1904.

Registered 30 1904.

Passed on, by—

Registering Clerk 190 .

U. R. Clerk 190 .

Referencer 190 .

Record Supdt. 190 .

Drafting Officer 190 .

SUBJECT.

Mr. Baskett, General Foreman, P.W. workshops, Reports that the services of — cannot be spared for until after the close of the current official year

No. 4 of 1904 quoted?

BACK PAPERS.

INDEXED.

PW 8310 / 21/4/05

Papers

Please see 642 d/ 29-2-04

put up

29/3/04

FURTHER PAPERS.

R 10340 / 24-3-04

29.3.04

To

The ~~Secretary to Government~~ Chief Engineer for Irrigation, ~~Public Works Department~~.

Sir,

At the request of the General Superintendent, P. W. Workshops, I have the honour to inform you that the services of Mr. Baskett, General Foreman, cannot be spared outside the Workshops until after the close of the current official year.

I have the honour to be,
Sir,
Your most obedient servt.

C. H. B. Burlton
Supg. Engineer
5th Circle

24.3.04

25

Stock Form No. 154
5,000—21-7-03.

Public Works (1904) Department.

CURRENT No. 1473

From

[Name] C. J. Ussher Esquire

[Designation] Superintending Engineer, 6th Circle

[Station] Kodaikanal

No. 3006 S.E.

Dated 12th April 1904

Enclosures { Plans / Others } Total —

Spare copies

Received 15. 4. 1904

Registered Do. 1904

Passed on, by—

Registering Clerk 190 .

U. R. Clerk 190 .

Referencer 190 .

Record Supdt. 190 .

Drafting Officer 190 .

E1.

It does not seem necessary to write to Ransomes & Rapier for new ropes as S.E. has already made arrangements for renewal. The S.E. however has not replied, nor does he say what he is doing in regard to the first part of this office memo under reference. He may be asked.

18/4/04

K

SUBJECT.

Periyar head sluice.

Reporting that new roller frame ropes were fixed shortly after the failure of the old ropes & that it is now arranged to fix new wire ropes to the counterweight during the closure of the —

No need to write as S.E. may be asked to furnish full reply

18/4/04

BACK PAPERS.

S 1290/04.	Papers 15/4/04

FURTHER PAPERS.

B W 2117 7/11/5	15/4/05

26

To

The ~~Secretary to Government~~ Chief Engineer for Irrigation, Madras. ~~Public Works Department.~~

Sir,

With reference to para 2 of your memo No 1126, dated 1st April 1904, I have the honor to inform you that new roller frame ropes were fixed shortly after the failure of the old ropes, and the Executive Engineer, Madura Division has arranged for new wire ropes to be fixed to the counter-weight during the closure of the Sluice.

Flag K

I have the honor to be,

Sir,

Your most obedient Servant

[signature]

Superintending Engineer, VI Circle.

1316

31290

27

Memo

No. 1397 d, 22nd april 1904

In acknowledging the receipt of letter No. 300 C.E. dated 12 april 1904 of the S.E. VI Circle, the undersigned has the honour to state that no reference has therein been made to the first para. of this office memo No. 1126 dated 1.4.04 and to request that the S.E. will be so good as to report when the section of the best site for a sluice in the watershed cutting may be expected.

22/4/04

25/4/04

Despd 23/4/04

INDEXED.

To The S.E. VI Circle

21.4.04

1373

Pwy2 / 7/1/5

I. Form No. 1 (a)
200—18-6-03.

29

[E. I.] 4,000—16-5-03.

Public Works (1904) Department

(IRRIGATION BRANCH).

CURRENT No. 1651

From

[Name]

[Designation] Gl. Supdt. P.W. Workshops.

[Station]

No. W.C.S. 6

Dated 25. 4. 1904.

Received 26. 4. 1904

Registered Do 1904

Enclosures {*Plans* / *Others*} *Total*

Spare copies

SUBJECT

Periyar Head Sluice Winch:— Conforming the telephone message of 25. 4. 04 requesting permission to go on with the making of new castings belonging to the — as the old ones reported by Mr. Baskett to have been broken.

BACK PAPERS. Papers

FURTHER PAPERS.

PWL13 7/1/5

27/4/04

25th April 1[illegible]4

R. S. [illegible]
Lt. Colonel
Offg.

The Supdt. Engr. [illegible]
Chief Engineer for
Irrigation
Madras.

Telegraph

(Y. 53)

No. 28 [illegible] I have the honor to confirm by letter my telegraphic message to you of this day's date, as follows:-

"Mr Bhaskett reports that some of the "Castings belonging to the Head Sluice Tanks at the "Bangri, are broken. He has brought [illegible] [illegible] [illegible] for renewing them after repairing the broken "parts temporarily being I go on [illegible] "of new Castings which I consider is absolutely "necessary, in anticipation of Official sanction."

Please let me know as soon as possible.

I have the honor to be, Sir,
Your most obedt. servant,
R. S. [illegible]
Lieut. Col. Supdt. [illegible]

N.B.—In any future communication on this subject, the number and date of this letter should be quoted.

Form No. S. 3.
500—19-2-04.

N.
CHIEF ENGINEER
FOR IRRIGATION.
26 APR 1904

No. W/6 C.I

PRESIDENCY PUBLIC WORKS WORKSHOPS,
"Mint Post Office,"
Madras, 25th April 1904

CHIEF ENGINEER
FOR IRRIGATION.
26 APR 1904
No. 1637

From
R. F. Stoney ~~M. Broad~~, Esq.,
Offg. GENERAL SUPERINTENDENT,
PUBLIC WORKS WORKSHOPS.

To

THE Chief Engineer for Irrigation,
Madras,
Chepauk

SIR,

Enclosures.
Nil

I have the honor to confirm by letter my telephone message to you of this day's date, as follows:-

"Mr Baskett reports that some of the "Castings belonging to the Head Sluice Winch at the "Periyâr, are broken. He has brought working Draw"ings for renewing them after repairing the broken "parts temporarily. May I go on with the making "of new Castings which I consider is absolutely "necessary, in anticipation of Official sanction"?

Please let me know as soon as possible.

I have the honor to be, Sir,
Your most obedt. servant,
R. F. Stoney 25/4/04
Genl Superintendent,
P.W. Workshops Division

Copd ... 25-4-04

O 25/4/04

25th April 4

J. F. Stevens
Gl. Supdt.
Offg.

Chief Engineer for
Irrigation
Madras.
Chepauk

I have the honor to confirm my letter No. 161 (?) of this day's date as follows.

"Mr Brackett reports that some of the "Castings belonging to the Head Sluice Winch at the "Engine are broken. He has brought two working "rings for renewing them after repairing the broken "parts temporarily. May I go on with the making "of new Castings which I consider is absolutely "necessary, in anticipation of Official sanction. "Please let me know as soon as possible."

I have the honor to be, Sir,
Your most obedt. servant,
J. F. Stevens
Genl Superintendent.

Telephone

From
Genl Supdt
P.W.D.

To E.I.

Mr. Baskett reports that some of the castings belonging to the head sluice winch at Periyar are broken. He ~~has~~ brought working drawings for renewing them after repairing the broken parts temporarily. May I go on with the making of new castings which I consider is absolutely necessary. In anticipation of official sanction,

P.T.O

please let me know
as soon as possible

MB 25/4/04

Put up
PL
25/4/04

E.I. for orders if the General Foreman may be authorized to go on with making new castings.

DR
25/4/04

Yes tell him to
make castings & apply
for formal sanction
giving reasons - JS
25/4/04

Reply.

You may make the castings
& apply for formal
sanction giving reasons
(By order)

DR
25/4/04

MB 26/4/04

Issue &
Submit file to DED by todays post

DR
25/4/04

32

Public Works Department,
V Circle.

PUBLIC WORKS WORKSHOPS.

From

CHIEF ENGINEER
FOR IRRIGATION.
26 APR 1904
1651

GENERAL SUPERINTENDENT,
PUBLIC WORKS WORKSHOPS.

Madras.

To

THE Chief Engineer
for Irrigation
Madras.

No. W./6 · C·I

Dated 25th } April 1904
Despatched 25th }
Received }

No. OF ENCLOSURES. —

Subject.

Periyar Head Sluice Winch — Confirming the telephone message of date about making new castings belonging to the —

——

33

[E. I. / 5] 4,000—16-5-03.

Public Works (1904) Department

(IRRIGATION BRANCH).

CURRENT No. 1668

From

[Name]

[Designation] Cl: Supdt: Gov. Workshops.

[Station]

No. W. C. J.

Dated 25. 4. 1904

Enclosures { Plans / Others } Total

Spare copies

Received 26. 4. 1904

Registered 27. Do 1904

SUBJECT

Inspection of the Stoneys Shutter at Thekkady Periar and Steam launches:— Forwards copy of Mr: Baskit's report on his

BACK PAPERS.

1651/02, + file sent to Ooty on 26.4.

H.E.
O. Please complete file & submit to DSS for orders

FURTHER PAPERS.

Papers sent to Ooty 26-4-04

File sent to Madras on the 28 instant & orders by wire today file below

28/4/04

35

Madras 25th April 1904.

To,

The General Superintendent.

P.W.Workshops.

Madras

CHIEF ENGINEER
FOR IRRIGATION.
27 APR 1904
No. 1668

Sir,

I beg to state that I inspected the Stoney's --- shutter at Thekady, Periar as well as the two steam Launches as ordered by you and requested by the Chief Engineer for Irrigation and Executive --- Engineer Madura and to report for your information as follows:-

Stoney's Shutter at Head Sluice. The sluice superintendent in charge rep reports that he was ordered to shut down the shutter by the Executive --- Engineer Madura. When it was about two feet from the sill, the wire ropes which suspend the rollers gave way and the shutter became unworkable. He got some extra lascars on to the handle of the winch and while looking - down below to see if the shutter was going down, he discovered that it was not moving, although the winch handle was turning round, it was then found that all the castings of the winch were broken and that most of the bolt heads gave way, some of the bearing beams of the platform also lifted, but on turning the winch handle and easing off the weight, the beams got on to their seatings again. When I arrived at Thekady with the fitters I took with me, I found that the Sluice Superintendent had patched up the winch leg and the pedestal bearing under the Bevel Crown wheel and that new -- ropes which were supplied by these shops were fitted to the rollers, the counterweight ropes were removed and were being lapped over with Marline and pitch which I thought was a very good thing. I ordered the fitters to take the winch adrift to examine the breakages and made the draftsman who came with me take working drawings of all the parts of the winch that had broken. It will be advisable to have new parts made at once and when read the patched parts can be removed and replaced by the new castings. Before leaving Thekady I saw that the shutter was working freely up and down the only part wanting adjustment was the wire rope on the right side of the rollers, this I told Mr. ~~Davidson~~ Dawson the Sub Divisional officer to have done while he was at Kurnvanuth Bungalow on his way to Thekady. I am of opinionthat this shutter will have to be inspected anually as although the front face was painted in a sort of a way before I arrived, the back of the shutter was very foul and dirty. In some places the rust which was

was loose, was over an inch thick. It was possible that this occurred between the two roller paths and the resistance to the rollers must have been enormous to part a crucible steel wire rope of the size used to suspend the rollers, as the rollers are a very good fit between the roller paths. Another thing that might have occurred is that one rope on account of meeting some resistance stretched a little more than the other & canted the rollers after which sliding friction must have taken place, thus throwing a great strain on the winch and the ropes, which caused both to part. This is I think what occurred and the rollers falling down on to sill level, the shutter became unworkable and were it not for the sluice Superintendent at Thekady being a good mechanic and being able to some how or other devise some means to put the shutter down the shutter would have entirely failed and probably in the event of a heavy flood been disastrous. These roller ropes are likely to fail again and more than a couple of spare ones should always be kept in stock at the sluice House also the counterweight ropes. Chains, if fitted, will I am sure answer satisfactorily. In this case the pulleys will have to be changed. I believe the Chief Engineer for Irrigation intends ordering a Lock gate to be built at the site of the earthwork dam to shut the water off in case of accident to the shutter. ~~This will enable the water to be shut off.~~ The counterweight ropes which were supplied by Messrs Richardson and Cruddas Bombay which were sent to Thekady are too large for the grooves of the wheels it will be advisable not to use these ropes as they are not flexible enough for pulleys of the present diameter. New spare ropes should at once be indented for i.e. if the Chief Engineer for Irrigation decides to let the wire ropes be, if not chains and chain pulleys should be manufactured & sent down to site as early as possible.

Steam Launch Resurrection. Inspected this Launch and steamed her up to Periyar and back. The wood work which was so carefully fitted in these shops was fitted any how and the hull instead of looking like a carvel built one, looked more of a clincher build, with more than half of the planking overlapping, especially noticeable at the stern. It is a wonder how the hull holds water at all, but the caulking will soon shake out and begin to leak. I was sitting forward when one of the fitters told me that the driver had 150 lbs of steam. I at once ordered the fitter to ease the safety valve and bring the steam down to 100 lbs per square inch on

on questioning the driver I was told that 175 lbs of steam was sometimes got up to make the Launch go I am surprised how the boiler stood it as the working pressure on calculation only works out to about 120 lbs per Sq:- inch and now that the boiler is old should only work witha pressure about 2/3rds of the working pressure i.e. 80 lbs per square inch.There was no tools of any kind on board and an estimate for the repairs of the ----- Macinery will shortly be submitted to the Executive Engineer Madura for approval and sanction. The launch when steaming full speed went about -- 3½ miles per hour. The Engine is powerful enough to drive a propeller -- with a lerger pitch,this will be included in the Estimate for repairs. While at Periyar I visited the site for the fitting of new shutters at the Right bank escape as per order of the Assistant Engineer for Irrigati

Steam Launch Daisy. The launch was hauled up on shore opposite the ---- Bungalows. On examination of the hull I found that the plates were eaten through in several places. I recommended that a sheathing of wood (teak planking 1" or1½" thick) be fitted over the iron plates and bolted ---- between rivets to prevent frames. The boiler was tested statically and several tubes and stays were leaking. An estimate for its repairs will-- shortly be sent to the Executive Engineer Madura for approval & sanction.

It will be advisable to ask the Boiler Inspector of Madras to inspect and pass both the Steam Launch Boilers after they have been repaired.

Reg & C.

(Sd) Jesse Baskell
Genl. Foreman
P.W.W. Madras

CHIEF ENGINEER
FOR IRRIGATION.
27 APR 1904
No. 1668

Copy forwarded to the Chief Engineer for Irrigation for information.

M. Brown. 25.4.04
Genl Supdt
P.W. Workshops

Recd
25/4/04

for Irrigation

Madras

Re boiler in the inspection of the Stoney's Shutter at Thekkady Periyar

Chell 7/1/5

40

Public Works Department,
V Circle.

PUBLIC WORKS STORES.

CHIEF ENGINEER
FOR IRRIGATION.
27 APR 1904
No. 1668

From

GENERAL SUPERINTENDENT,
PUBLIC WORKS STORES.

Madras.

To

THE Chief Engineer
for Irrigation
Madras

No. SW/7 .C.9.

Dated 25th
Despatched 25th } April 1904.
Received.

No. OF ENCLOSURES.

nil

Subject.

Reporting on the inspection of the Stoneys Shutter at Thekkady Periar and the two Steam launches by Mr Basket. General Foreman

41

PUBLIC WORKS DEPARTMENT,

IRRIGATION BRANCH.

No. 1488 d, 28th April 1904

Memo

With reference to letter No $\frac{W}{6}$ C.I. dated 25: inst. from the Genl Supt. P.W. Workshops and in confirmation of this office telephone dated 26: inst. the undersigned has the honour to state that the castings referred to may be made, in anticipation of sanction to the estimate which should be prepared and submitted to the S.E. as soon as possible.

[signature]

C.E.I.

The estimate for the work may be sanctioned by the S.E. himself under "42 Maintenance and Repair"

[initials]

INDEXED.

Despd
2.5.04

To The Genl. Supt., P.W. Workshops.

Copy to the S.E. VI Circle (with copy of telephone from the Genl Supt.)

[initials]
26.4.04

Rue 15 / 71/5

43

Stock Form No. 154
5,000—21-7-03.

Public Works (1904) Department.

CURRENT No. 1752

From

[*Name*] C. J. Ussher Esqr.

[*Designation*] Superintending Engineer, Sixth Circle

[*Station*] Hyderabad

No. 332 C.E.

Dated 28th / 30 April 1904

Enclosures { *Plans* / *Others* } *Total.*

Spare copies

Received 1 . 5 . 1904.

Registered 2 — 5th 1904.

Passed on, by—

Registering Clerk 190 .

U. R. Clerk 190 .

Referencer 190 .

Record Supdt. 190 .

Drafting Officer 190 .

SUBJECT.

Periar Head Sluice. Forwarding copy of deferred telegram requesting Cable Ransomes and Rapier to send roller and balance wire ropes.

Soon

BACK PAPERS.

Papers

R 1714 / 04

FURTHER PAPERS.

To

The Chief Engineer ~~Secretary to Government~~, for Irrigation ~~Public Works Department.~~

Madras.

Sir,

45

Copy of a deferred telegram dated 28th April 1904, from C.J.USSHER Esquire., Superintending Engineer, VI - Circle, to the Chief Engineer, for Irrigation, Madras.

S

"Baskett's inspection notes Periyar Sluice. Please cable Ransomes and Rapier to send roller and balance wire ropes."

------::::------

CHIEF ENGINEER FOR IRRIGATION.
2-MAY 1904
No. 1752

No. 332 C.E.

Copy (by post) to the Chief Engineer, for Irrigation, Madras.

Suptg:Engr's Office,
VI Circle,
Dated 28th April 04.
Desp 30

"By Order"

Ponnuswami Iyer
30/4/04
Head Clerk,
Suptg:Engineer's Office,
VI Circle.

30/4/04

Plue 16
7/4/5

49

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

(Cable to Messrs
Ransomes & Rapier)

"Ransomes Rapier
London,
Rollers Balance
Irrigation Madras."

MRK
4/5/04

[illegible]
4.5.04

Despd 4.5.04

5269

R 1752/04

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

Memo: No 79–0

With reference to his No 332 C.E. dated 28' ultimo, the Supg Engineer, Sixth Circle is informed that a cable ~~has been sent~~ was sent on 4/5/04 to Messrs Ransomes Rapier & Co London to send roller and balance wire ropes.

MRK
10/5/04

Despd 10-5-04

To

The Supg Engr 6 Circle

10/5
1075

50

Blue 18
7/1/14

5

[E/L 6] 4,000—19-3-02.

Public Works (1904) Department

(IRRIGATION BRANCH.)

Rh 63
Coly. 25-5-04

CURRENT No.

From

[Name] Messrs. Ransomes & Rapier, Limited,

[Designation] 32 Victoria Street

[Station] London, S.W.

No. –

Dated 6th May 1904.

Enclosures { Plans / Others } Total

Spare copies

Received 25 - 5 - 1904.

Registered 25 May 1904.

SUBJECT.

Acknowledging the receipt of the telegram of the 4th inst. requesting to supply One pair of Roller Suspension Ropes and also one pair of balance weight rope required for the Petiyar Head Sluice.

BACK PAPERS.

D.S.

Write & say this is correct & send copy to S.E. for inf.

25/5

M.R.K.

25/5/04

FURTHER PAPERS.

~~4~~52

53

Ransomes & Rapier Limited.

32, Victoria Street.
London, S.W.

MANUFACTURERS OF
HAND, STEAM & ELECTRIC CRANES,
TRAVERSERS & TURNTABLES,
CAPSTANS,
SWITCHES & CROSSINGS,
TANKS,
WATER CRANES & PUMPS,
BRIDGES,
HYDRAULIC BUFFER STOPS,
CASTINGS,
CONTRACTORS & RAILWAY PLANT,
WAGONS,
"STONEY" SLUICES,
BOILERS,
COKE RAMS.

WATERSIDE IRON WORKS,
IPSWICH.

TELEGRAMS;
RANSOMES RAPIER, LONDON.
WATERSIDE, IPSWICH.

TELEPHONES;
No 568 WESTMINSTER.
No 49 IPSWICH.

MANAGING DIRECTOR: WILFRID STOKES.
SECRETARY: A.A.BENNETT.

May 6th. 1904.

A. H. Garrett Esq,
Chief Engineer for Irrigation,
Public Works Department,
Irrigation Branch. Madras.

Dear Sir,

Periyar Head Sluice.
---------------oOo--------------

Flag F

We beg to acknowledge the receipt of your cable of the 4th. instant, reading :- "Rollers, balance" which we understand to mean that you wish us to supply One Pair of Roller Suspension Ropes and also One Pair of balance weight Ropes.

We have accordingly instructed our Works to deal with this matter, and we will advise you in due course when the ropes are despatched.

Thanking you for the order, and assuring you of our best attention,

We are, Dear Sir,

Yours very truly,

RANSOMES & RAPIER LIMITED,
Wilfrid Stokes
Managing Director.

25-(4)-05-
5. 04

Ransomes & Rapier Limited,
32 Victoria Street,
London, S.W.

Manufacturers of Hand, Steam & Electric Cranes, Transporters & Turntables, Capstans, Switches & Crossings, Tanks, Water Softeners & Pumps, Bridges, Hydraulic Buffer Stops, Castings, Contractors' & Railway Plant, Engines, [illegible], Rollers, [illegible].

Waterside Iron Works, Ipswich.

Telegrams: Ransomes Rapier, London. Waterside, Ipswich.

Telephones: [illegible] Westminster, [illegible] Ipswich.

Managing Director: Wilfrid Stokes. Secretary: A. A. Bennett.

May 4th, 1904.

A. W. Garrett Esq.,
Chief Engineer for Irrigation,
Public Works Department,
Irrigation Branch, Madras.

Dear Sir,

Periyar Head Sluice.

We beg to acknowledge the receipt of your cable of the 4th. instant, reading :- "Rollers, balance" which we understand to mean that you wish us to supply One Pair of Roller Suspension Ropes and also One Pair of Balance Weight Ropes.

We have accordingly instructed our Works to deal with this matter, and we will advise you in due course when the ropes are despatched.

Thanking you for the order, and assuring you of our best attention,

We are, Dear Sir,

Yours very truly,

Wilfrid Stokes

5 ~~15~~

PUBLIC WORKS DEPARTMENT,

IRRIGATION BRANCH.

To No 40 - O

Messrs Ransomes & Rapier & Co

No 32 Victoria Street.

London SW

Gentlemen,

I have the honour to state that the interpretation ~~conveyed~~ given in your letter of 6 May 1902 ~~regarding~~ of the cable despatched from this office on the 2nd instant is correct.

MRK
25/5/02

[signature]

25.5.02

Despd. 26-5-02

To

Messrs R & R Co

No 41 - O

Copy ~~together~~ with copy of letter from Messrs R & R Co forwarded to the Supg Engr VI Circle in continuation of this office No 19. O. dated 10 May/02.

56

Phe 20
7/1/5

Stock Form No. 154
5,000—21-7-03.

59

Public Works (1904) Department.

Rh 127
Coly. 16.6.04

CURRENT No. 2488

From

[*Name*] C. J. Wacher Esquire,

[*Designation*] Supdg: Engineer, 6 Circle,

[*Station*] Kodaikanal.

No. 431 C.E

Dated 9 June 1904.
& Sep 14 "

Enclosures { *Plans* 4 / *Others* " } *Total* 4

Spare copies

Received 16 June 1904.

Registered 16 June 1904 } 20.6.04

Passed on, by—

Registering Clerk 190 .

U. R. Clerk 190 .

Referencer 190 .

Record Supdt. 190 .

Drafting Officer 190 .

SUBJECT.

Periyar Water shed cutting — Forwarding longitudinal and cross sections of — taken at intervals of 100 ft for a distance of 2500 ft from the Head Sluice and suggesting that Messrs Ransomes and Rapier should be asked to design a sluice gate to be used in the grooves provided in front of the existing Sluice.

Papers
18/6

BACK PAPERS.

Referred papers are put up ... R 1714 / ... 29/4/04	WS 7/6

FURTHER PAPERS.

~~60~~ 58

To

The Chief Engineer ~~Secretary to Government~~, ~~Public Works Department~~ for Irrigation,

Madras.

Sir,

With reference to paras of your memo No 642 dated 29 February 1904 and Nos 1126 & 1397 dated 1st & 21st April 1904 respectively, I have the honour to forward herewith cross sections of the Periyar water shed cutting taken at intervals of 100 ft for a distance of 2500 feet from the Head Sluice.

Page 15 of current file
" 22 do
" 38 do
Recd [illegible]

2. I do not think a sluice could be constructed in this narrow cutting without forming a serious obstruction to the flow of water when the Lake is fairly low. I would suggest that Messrs Ransomes & Rapier should be asked to design a sluice-gate to be used in the grooves provided for the purpose in front of the existing sluice. This would permit necessary repairs being carried out without the necessity

of

59.~~64~~

of forming a temporary earthen bund across the cutting. In the event of any accident to the lifting gear of the existing shutter, it might be a great convenience to have an outer shutter, but of course the outer shutter could only be lowered if the vent was fully closed by the existing shutter, and not if the shutter jammed and could not be closed.

I have the honour to be

Sir,

Your most obdt servt

CHIEF ENGINEER
FOR IRRIGATION.
20 JUN 1904
No. 2485

C. J. [illegible]
Exec. Engineer,
Colicut

[illegible]
11/6/04
[illegible]

60

Rh 127
obj 13.6.04

Pbwc 21
7/11/5

[C.I. 5] 4,000—16-5-03.

Public Works (1904) Department

(IRRIGATION BRANCH).

CURRENT No. 2756

From

[*Name*]

[*Designation*] Agent for Govt: Consignments.

[*Station*] Madras:

No. P.A 258

Dated 4. 7. 1904.

Enclosures {*Plans* / *Others* 1} *Total* 1

Spare copies

Received 5. 7. 1904.

Registered Do 1904.

SUBJECT

Particulars of original packing acct. of Stores from England per Steamer Rewa:— Forwards —— (case contg 1 pair of roller suspension ropes + 1 pair of balance weight Ropes Periyar Hd. Sluice—

BACK PAPERS. See

Connected papers are at O.D.

Hfco
Write & ask W. S. Supt. to Clear the goods & forward to S.E. VI as desired.— Send copy to S.E. VI for info

nsk 8/7/04

FURTHER PAPERS.

I 4004 4110 / out file 4 04 Bp—

5.7.04

#62

65

R 2758
5-7-08

Form No. 24.

1-11-03.

ART. 1-(E), PART IV.
RULES FOR L. & S. & T. OF STORES.

No. P. A. / 258

MEMORANDUM.

Particulars of ORIGINAL PACKING ACCOUNT of Stores from England per steamer Rewa

FORWARDED for information and record.

OFFICE OF THE AGENT FOR GOVERNMENT CONSIGNMENTS,
Madras, 4 July 1904.

[signature]
for Agent for Government Consignments.

To

The Chief Engineer for Irrigation
P.W. Dept.
Chepauk

PWC 23
7/11/5

Urgent 47 65

PUBLIC WORKS DEPARTMENT,

IRRIGATION BRANCH.

No. 141-C d/ 8-7-04

Memo:

* Re. roller frame and counterweight ropes for the Periyar Head Sluice from Messrs. Ransomes & Rapier.

The accompanying/packing * account received in this office is forwarded to the General Superintendent P.W. Workshops who is requested to clear the goods and forward them to the Superintending Engineer Sixth Circle as desired.

MRK
8/7/4

DESPATCHED
DATE 9-7-1904
ENCLOS. 1

To
The General Supt P.W. Workshops
No. 142-C d/ 8-7-04
Copy to the Supg Engineer VI Circle for information in continuation of memo No. ~~68-0~~ 19-0 ~~7-6-04~~ 10/6/04

Despd. 9-7-04

MRK 8/7

As it is believed to be too late to fix the Counterweight ropes this working season the S.E. is requested to report at once what arrangements are being made for working the [illegible]

MRK 8/7/4

Papers 50 [illegible] File

Public Works (1904.) Department.

oo[illegible] R 209 / 14-7-04

CURRENT No.

From

[Name] C. J. U S S H E R Esquire.,

[Designation] Superintending Engineer, VI Circle,

[Station] Trichinopoly.

No. 498 C.E

Dated 11th July 1904.
Dcspd 12 - do

Enclosures { *Plans* / *Others* } *Total.*

Spare copies

Received 14 - 7 - 1904.

Registered 190 .

Passed on, by—

Registering Clerk 190 .

U. R. Clerk 190 .

Referencer 190 .

Record Supdt. 190 .

Drafting Officer 190 .

It is much to be regretted that the impossibility of getting proper ropes in this country was not discovered sooner, so that ropes might have been obtained from England and fixed before the commencement of the irrigation season. The S.E. should see that there is suitable lifting tackle at Tekkady, & make all arrangements necessary for dealing with any accident similar to the one which occurred last Nov.

~~This is not at all satisfactory~~

SUBJECT.

Periyar Head Sluice. Stating the impracticability of the new counterweight ropes being fixed and that it will be however be tried later on as the old ropes have been refixed.

BACK PAPERS.

Papers on the file with [illegible]

The Supdt P.W. Shops has been asked to clear the new ropes & despatch at once to S.E. as directed by him. [initials]
14/7/04

W.S. 14-7

It would be far better & under present circumstances to provide new ropes every year. Trusting to the present ropes for another year is considered extremely hazardous.

new . – to the

FURTHER PAPERS.

[initials]
15.7.04

Draft [illegible] 14/7/04

P.W. 224 7/1/05

68

Public Works (190) Department.

To

The ~~Secretary to Government~~ Chief Engineer, ~~Public Works Department~~

For Irrigation,

MADRAS.

Sir,

With reference to your No.142-O, dated 8th July 1904, I have the honor to inform you that counterweight ropes were - obtained from Messrs.Richardson and Cruddas but the Executive Engineer reported that they were not suitable or of the diameter indented for by him. The endeavours of the Executive Engineer to obtain suitable ropes elsewhere did not meet with success. There was then no alternative but to use the old - ropes and these were refixed. If practicable the new ropes now received from England will be fixed, but this would involve closing the sluice for two or three days which could - not be done at this season although it might be done later - on when there is not such a demand for water and when there will probably be rain.

I have the honor to be,

Sir,

Your most obedient servant,

[signature]

Superintending Engineer,

VI Circle.

P.P. 11-7-04

Public Works Department,

Irrigation Branch.

No. 147-O.

R 209/04.

Memo:

Refce: Supg Engineer No 498 C.E. dated 11 July 1904.

The Ch. Eng for I h h to remark that It is much to be regretted that the impossibility of getting proper ropes in this country was not discovered sooner so that ropes might have been obtained from England and fixed before the commencement of the irrigation season. The Superintending Engineer should see that there is suitable lifting tackle at Tekkady, and make all arrangements necessary for dealing with any accident similar to the one which occurred last November.

2. It would be far better, under present circumstances to provide new wire ropes

every year. Trusting to the present ropes for another year is considered entirely hazardous

MRK
15/7/04

15.7.04

DESPATCHED
DATE 15-7-1904
ENCLOS. Nil

To

The Supg Engineer VI Circle

15.7

PWC 25
7/1/15

No 2466. d. 25-7-04.

FILE SP. ... TT ... ENCLOS. ...

ENTERED IN THE CALL BOOK.

Memo.

The Genl. Supt. P.W. Shops

Enclo 3

1 Tracing
2 Vols.

DESPATCHED
DATE 28-7-1904
ENCLO 3

The Ch. Engr. for D. h. h. to forward across sections of the watershed cutting forming the approach to the Peiny Head Sluice & to request the Genl. Supt. P.W.W. to submit a design & estimate for a ~~floating~~ sliding caisson to shut off water in order to carry out repairs, &c. to the sluice should it be found necessary to do so with the ~~reservoir~~ lake full ~~[illegible]~~.

Cross section No 5 is considered the best ~~section of the cutting~~ site for the proposed work.

The Caisson should be designed to meet the worst conditions, viz:- when the sluice ~~[illegible]~~ jams leaving an open ventway, & the lake is full i.e. ~~at [illegible]~~ water is standing at level + 152.00, the level to which it is proposed to raise. J.T.L.

The Caisson should be designed to enter a caisson chamber to be excavated in the hard rock at the site & all hauling & guiding gear should be provided for.

This method of closing the

HD

Make a tracing of No 5 for the works Supt.

[illegible] 25/7/04

D.E.I. attended to

D. 25/7/04

Type

INDEXED.

No. 4 (l)—1,000—20-8-03.

Cutting it is considered, will be most suitable ~~more economical than dark gates or lift shutters, the stairs, the head being 45 ft & the width of opening about 28 ft.~~

Vols No LXV & CXXII of the Proceedings of the Inst. of C. E. bearing on the subject of sliding caissons are forwarded to the Supt for information & early return. It is requested that the books be handled with care as they belong to the P.W. Secretariat Library.

MRK
22/7/4

[illegible] 25.7.04

Ex.

[illegible] the [illegible] the [illegible] [illegible] [illegible] [illegible] water at the [illegible] height & [illegible] [illegible] to the sluice [illegible] [illegible] [illegible] height [illegible] [illegible] necessary [illegible] [illegible] [illegible] that reference might be made [illegible] in the [illegible] [illegible] case a [illegible] of CS No 5 would be all that [illegible] would require & might be [illegible]

Pwe/6
7/1/5

Approved
[illegible]
25.7.04

ENTERED
IN THE CALL BOOK.

DESPATCHED
DATE 26.7.1904
ENCLOS. 4 plans

INDEXED.

135

PUBLIC WORKS DEPARTMENT,

IRRIGATION BRANCH.

No 2467 of 25.7.04

Memo

In returning the plans received with the S.E.s No 4316 E d. 9th June of the Ch Eng for S.L. to observe that the only site suitable for a work of the nature required when the F.T.L is raised to +15 appears to be C.S No. 5.

The S.E. is requested to report whether it has been ascertained that should a work be built at such a section, water would not find its way round the work to the existing sluice.

To ascertain this it would be necessary to extend C.S. No 5, or any other section that appears more suitable until the ground rises

74

Continuously above the level + 152.00.

The A.E. is requested to resubmit the plans with his report on this point.

M.R.K.
20/7/14

Bhl 27
7/1/15

Stock Form No. 154
5,000—21-7-03.

Public Works (1904) Department.

Rh 288
Acky 8-8-04

CURRENT No. 3340

From

[*Name*] C. J. Nisbet Esqr.

[*Designation*] Superintending Engineer, 6th Circle

[*Station*] Trichinopoly

No. 567 CE

Dated 5th August 1904

Despd 6 do

Enclosures {*Plans* / *Others* -} *Total.* —

Spare copies

Received 8th August 1904.

Registered 11. 8. 1904

Passed on, by—

Registering Clerk 190 .

U. R. Clerk 190 .

Referencer 190 .

Record Supdt. 190 .

Drafting Officer 190 .

This should be sent to Madras for E. 1 to see before recording; I do not understand the EE's statement.

[illegible] 8/8/04

SUBJECT.

New wire ropes for Stoney's Shutter at Perungar - Forwarding copy of letter from the Executive Engineer Madura Division, stating that the — will be fixed as soon as there is a good rain in the Perungar Catchment

No 2690 G. 13-8

Recorded

G. A.

13/8/04

BACK PAPERS.

FURTHER PAPERS.

76

To

The ~~Secretary to Government~~ Chief Engineer for Irrigation, Public Works Department.

Madras

Sir,

Copy of a letter No.466-S.E. dated 1st August 1904, from M.R.Ry, A.V.Ramalinga Aiyar Avl., Executive Engineer, Madura Division, to the Superintending Engineer, VI Circle, Trichinopoly.

In reply to your No.2904 dated 20th July, I have the honor to state that the new wire ropes will be fixed as soon as there is a good rain in the Periyar catchment as already suggested in your Memo.No.2767 dated 11th July.

No. 567 C.E.

Copy to Chief Engineer for Irrigation, with reference to his memo No.147-O, dated 15th July 1904.

Suptg:Engr's Office,
VI Circle,
Dated 6th August 04.

Superintending Engineer,
VI Circle.

CHIEF ENGINEER
FOR IRRIGATION
11 AUG 1904
No. 3340

80 78

Ph 288
Coly 8-8-04

Obe 28
7/1/5

[E. I. / 5] 4,000—25-4-04] 79

Public Works (190 4) Department.

(IRRIGA[...] BRA[...]CH.)

CURRENT No. 3302

From

[*Name*]

[*Designation*] Gl: Supdt. P.W. Workshops.

[*Station*]

No. W.E.J. 30 | *Received* 8 . 8 . 1904

Dated 6 . 8 . 1904

Enclosures {*Plans* / *Others*} *Total* | *Registered* Do 1904

Spare copies

SUBJECT.

Sliding Caissons. — Stating that the design of — is not dealt with in the 2 volumes of the minutes of the Proceedings of the Institution of the Civil Engrs. recd. — but only that of floating caissons & proposing to reduce the span to 15 ft as the ventway of the sluice behind is only 9' 9" x 12' - 9"

BACK PAPERS. Papers

~~Note~~ for Rh

~~It is understood that the papers connected with this file have been sent back to Ocfy~~

FURTHER PAPERS.

To be dealt ... this ...

R 8/8/04

10/11

8

N.B.—In any future communication on this subject, the number and date of this letter should be quoted.

CHIEF ENGINEER FOR IRRIGATION, 6-AUG 1904 No. 3307

8

Form No. S. 3. 500—19-2-04.

No. W. 30 E. 9

PRESIDENCY PUBLIC WORKS WORKSHOPS,
"Mint Post Office,"
Madras, ~~6th August~~ 1904.

From

R. F. Stoney, Esq.,
Offg. GENERAL SUPERINTENDENT,
PUBLIC WORKS WORKSHOPS.

To

THE Chief Engineer
for Irrigation,
Chepauk

SIR,

Enclosures. nil

Pages 71-72 of C file

With reference to your Memo No. 2466 dated 25th July 1904, I have the honor to state that on perusal of the 2 volumes of the Minutes of the Proceedings of the Institution of Civil Engineers I find that the design of sliding Caissons is not dealt with but only that of floating Caissons. I have the honor to propose to reduce the span to 15 feet as the ventway of the Head sluice behind is only 9'-9" X 12'-9"; and to make a gate which would be carried on rollers on an over-head platform, somewhat similar in type to the lock gates at the Assouan Dam which are referred to in Page 84 of Messrs. Ransomes & Rapier's book on the Stoney's Freeroller Sluices, New edition.

One copy with Mr. Draftsman ... of ...

I

84

I have the honor to be,

Sir,

Your most obedient servant,

R. S. Stoney 6/8/04

Offg. General Superintendent,

GH 6/8/04

P. W. Workshops.

Typed B.R.

84

Public Works Department,
V Circle.

PUBLIC WORKS WORKSHOPS.

From

R. F. Stoney Esquire
GENERAL SUPERINTENDENT,
PUBLIC WORKS WORKSHOPS.
Madras.

To

THE Chief Engineer
for Irrigation
Chepauk.

No. W. E.I.
30

Dated 6th
Despatched 6th } August 1904.
Received

NO. OF ENCLOSURES.

Nil

Subject.

Sliding Caissons

Proposes to reduce the span to 15 ft as the vent way of the Head Sluice behind is only 9'-9" x 12'-9'

7/1/5

8

P.W.D.Irrigation

No 2769 d/ 19-8-04

DESPATCHED
DATE 24.8.1904
ENCLOS. 1

Memorandum.

With reference to his letter No. W/30 E.I. dated 6th instant the General Superintendent P.W.Workshops is informed that any contraction of the watershed cutting would mean loss of head at the sluice, and is to be deprecated. Vol.65 has illustrations of the kind of caisson which would answer.

It is believed that the only way of dealing with this important question is by a caisson and the security afforded will amply repay the cost whatever it may be.

Vol. LXV of the Procgs. of the Institution of Civil Engineers

Please say if the Vol 65 is to go with this memo. - Yes but please return carefully

19/8/04

19.8.04

To

The General Supdt. P.W.Workshops.

16/8/04

86

Pwe 30
7/1/5

[E. I. / 5] 4,000—25-4-04.

87 L.O. 115

Public Works (1904) Department.

(IRRIGATION BRANCH.)

CURRENT No. 4760 with R 4811

From

[Name]

[Designation] Gl: Supdt. P.W. Workshops.

[Station]

No. W. & I. 36

Dated 27 . 10 . 1904

Enclosures { *Plans* 2, *Others* 4 } *Total*

Spare copies

Received 190 .

28.10.04.

Registered 190 .

SUBJECT.

Rolling Caisson in front of the Periyar Head Sluice

Forwards estimate, Plans & report for a ——

BACK PAPERS. Papers

31/10

URTHER PAPERS.

28/10/04

89

N.B.—In any future communication on this subject, the number and date of this letter should be quoted.

Form No. S. 3.
500—19-2-04.

No. $\frac{W.}{36}$ E. 9.

PRESIDENCY PUBLIC WORKS WORKSHOPS,
"Mint Post Office,"
Madras, 27th October 1904.

From

R. F. Stoney, Esq.,
Offg. General Superintendent,
Public Works Workshops.

To

The Chief Engineer
for Irrigation,
Chepauk.

Sir,

Enclosures. 6.
pcc of file

1 Estimate.
2 Plans.
1 Calculation sheet.
1 Report.
1 Book.

With reference to your Memo: No: 2769 dated 19th August 1904, I have the honor to submit herewith plans, estimate and a report accompanying the same, for a rolling caisson to shut off the water in order to carry out repairs to the sluice, should they be found necessary even when the lake is full. The rolling caisson is considered preferable to the sliding caisson, as the rollers possess the advantage of acting as guides to keep the caisson in the centre of the berth & chamber, while the sliding caisson has no such guides.

The Vol: LXV of the Proceedings of the Institution of Civil Engineers is also returned herewith.

I have the honor to be,
Sir,
Your most obedient servant,
R. F. Stoney 27/10/04
Offg. General Superintendent,
P. W. Workshops.

CHIEF ENGINEER FOR IRRIGATION.
28 OCT 1904
No. 4760

Chk. 27/10/04

B.R.

90

Public Works Department,
V Circle.

PUBLIC WORKS WORKSHOPS.

From

R. F. Stoney Esquire
Offg GENERAL SUPERINTENDENT,
PUBLIC WORKS WORKSHOPS.
Madras.

To

THE Chief Engineer
for Irrigation
Chepauk

No. W./36 E.I.

Dated 27th
Despatched 27th October 1904.
Received

NO. OF ENCLOSURES.
6
(detailed within)

Subject.

forwards Estimate. Plans & report for a rolling Caisson in front of the Periyar Head Sluice.

Plans 31
701/15

E. 120.
50,000—24-8-03.

ESTIMATE FORM.—Detail Measurements.

Detail of Work.	Number.	Measurements in Feet. Length.	Breadth.	Depth.	Area or Contents.	Total Quantity of each description of work.
1	2	3	4	5	6	7
Constructing a Caisson (rolling) in front of the Periyar Head Sluice Height 52'-6" Breadth 24', Width 15'						
Mild Steel plates					lbs	
3/4" Plates in front of Caisson, at bottom	2	12'	1'-10½"	3/4"	1380	
Do " — " —	22	12'	2'-0"	3/4"	16195	
" Plates on sides " — " —	2	15'	1'-10½"	3/4"	1725	
" Do " — " —	22	15'	2'-0"	3/4"	20244	
" Plates in rear side " — " —	2	10'-6"	1'-10½"	3/4"	1208	
" — Do	22	10'-6"	2'-0"	3/4"	14170	
5/8" Plates in front " —	14	12'	2'-0"	5/8"	8388	
" — " on sides —	14	15'	2'-0"	5/8"	10735	
" — " in rear	14	10'-6"	2'-0"	5/8"	7515	
1/2" Plates in front	10	12'	2'-0"	1/2"	4908	
" — " — on sides	10	15'	2'-0"	1/2"	6134	
" — " in rear	10	10'-6"	2'-0"	1/2"	4294	
3/8" Plates in front	6	12'	2'-0"	3/8"	2208	
Do at top	2	12'	2'-4½"	3/8"	874	
" — " on sides	6	15'	2'-0"	3/8"	2760	
" — " — " at top	2	15'	2'-4½"	3/8"	1093	
" — " — " in rear	6	10'-6"	2'-0"	3/8"	1932	
" — " at top	2	10'-6"	2'-4½"	3/8"	765	
1" Plates at bottom of Caisson	7	15	3-0"	1"	12882	
Do	1	15'	1'-6"	1"	920	
" — Plates below watertight deck	7	15'	3'-0"	1"	12882	
Do	1	15'	1'-6"	1"	920	
Horizontal stringers in front	19	24'	1'-3"	1/2"	11,655	
Do in rear	19	21'	1'-3"	1/2"	10,198	
C Over					1,56,185	lbs

ESTIMATE FORM.—Detail Measurements.

Detail of Work.	Number.	Measurements in Feet. Length.	Breadth.	Depth.	Area or Contents.	Total Quantity of each description of work.
1	2	3	4	5	6	7
Bt forward					lbs 156185	
Rectangular Gussets	30	5'-4½	1'-3"	½"	4122	
Do	30	3'-3'	1'-3'	½"	2492	
Do	30	2'-4½	1'-3'	½"	1821	
Triangular Gussets	225	1'-6"	1'-6"	½"	10352	
Plates between skin and Angles	5	75'-0"	3'	¾"	2876	
Do	2	75'-0"	3"	⅝"	959	
Do	2	75'-0"	3"	½"	767	
Do	1	75'-0"	3"	⅜"	286	
Cover plates in front & rear for butt joints	4	49'-0"	6'	⅜"	1503	
Do for bottom plates & those below watertight deck	28	15'-0	6'	⅝"	5368	
Washer plate below yoke	1	2'-0"	1'-0"	1"	82	
Add 5% for wastage					9341	
Total Mild Steel Plates						196154 lbs
Mild Steel Flat						
For tying angles together	30	22'-6"	4"	½"	4611	
Do	30	21'-3'	4"	½"	4345	
Do	30	18'-9"	4"	½"	3834	
Add 5% for wastage	—	—	—	—	640	
Total Mild Steel flat						13430 lbs
Mild Steel Channels						
Channel in front of yoke	1	22'-0	12"x3½"x½"		673	
Total Mild Steel Channel						673 lbs
Mild Steel Oblong						
For Keels	2	21'	1'	9"	15459	
Total Mild Steel Oblong						15459 lbs

93

E. 120.
50,000—24-8-03.

ESTIMATE FORM.—Detail Measurements.

Detail of Work.	Number.	Length.	Breadth.	Depth.	Area or Contents.	Total Quantity of each description of work.
1	2	3	4	5	6	7
Mild Steel Angles Etca						
Cross horizontal Angles in the bracing frames	15x10	15'	(4½"x4½"x½")		lbs 31,230	
— do: —	15x2	15'	(4"x4"x½")		6,246	
— do —	15x2	15'	(3½"x3½"x½")		4,986	
— do —	15x1	18'	(6"x4"x⅝")		5,464	
— do: —	15x6	15'	(3"x3"x½")		12,650	
Longitudinal angles in the bracing frames	21.	23'	(3"x3"x½")		4,526	
— do: —	21	22'	(3"x3"x½")		4,329	
— do in bottom at sides	1	24'	(3"x3"x½")		197	
— do: — downstream side	1	21'	(3"x3"x½")		197	
Angles for connecting stringers to plates - upstream side	21x16	1'-6"	(3"x3"x½")		4,722	
— do: downstream side	21x14	1'-6"	(3"x3"x½")		4,132	
Vertical Angles bracing the plate at the upstream side	15	52'-6"	(3½"x 3½"x½")		8,726	
— do:- at the downstream side	15	52'-6"	(3½"x3½"x½")		8,726	
— do at the centre of the bracings	30	49'	(4"x4"x½")		18,787	
Horizontal cross angles at sides	2x10	15'	(4½"x4½"x½")		4,344	
— do: —	2x2	15'	(4"x4"x½")		767	
— do: —	2x2	15'	(3½"x3½"x½")		664	
— do: —	2x1	18'	(6"x4"x½")		583	
— do: —	2x6	15'	(3"x3"x½")		1,687	
Vertical Angles at the upstream side at sides	2	51'	(4"x4"x½")		1,304	
— do: at the downstream side	2	51'	(4"x4"x½")		1,304	
— do: at intervals at sides	2x2	47'-6"	(3½"x3½"x½")		2,428	
Carried over					1,27,899	

ESTIMATE FORM.—Detail Measurements.

Detail of Work.	Number.	Measurements in Feet. Length.	Breadth.	Depth.	Area or Contents.	Total Quantity of each description of work.
1	2	3	4	5	6	7
Brought forward					127899	lbs
Angles at the teak meeting face exterior front	1	124'	(4"×4"×½")		1585	
– do: interior front	1	120'	(4"×4"×½")		1534	
– do: exterior, ~~front~~ at the back	1	121'	(4"×4"×½")		1547	
– do: interior at the back	1	117'	(4"×4"×½")		1496	
Add for wastage					5555	
Total Mild steel Angles						139616 lbs
Mild Steel Round						
For roller pins	20	3'-3"	7½"	Dr.	8521 ~~6204~~ lbs	
" Spindle for regulating valves	4	18'-0"	2"	Dr.	771	
" chain wheels in front of chamber	2	2'-3"	4"	Dr.	193	
" shaft at back of chamber	1	22'-6"	4"	Dr.	964	
" Pulleys supporting chain	8	2'-0"	1½"	Dr.	96	
" Capstan ~~worm~~ p/r	1	5'-0"	4½"	Dr.	271	
" Do worm	1	5'-0"	6"	Dr.	482	
" Handles of Capstan	3	6'-0"	1½"	Dr.	108	
" Bolts of yoke	2	3'-0"	¾"	Dr.	9	
" Bolts of Sluice valve	16	1'-3"	⅝"	Dr.	22	
" Eyebolts for chain	1	2'-0"	¾"	Dr.	3	
" Footstep Pedestal	1	3"	3"	Dr.	6	
Add for wastage					285	
Total Mild steel Round						11731 ~~471~~ lbs
Gas Pipes ⅞" Dr. internal.						
For Hand railing	4	24'			96'	
Do.	4	21			84'	
Total Gas pipes ⅞" diameter (Internal)						180 Rft.

ESTIMATE FORM.—Detail Measurements.

Detail of Work.	Number.	Measurements in Feet. Length.	Breadth.	Depth.	Area or Contents.	Total Quantity of each description of work.
1	2	3	4	5	6	7
Cast Iron.					lbs	
Rollers 2' length & 18" dr	20	1510 lbs each			30200	
Roller brackets 5'-0" x 3'-6"	20	3600 lbs each			72000	
Castnia yoke 5'-0" x 1'-0"	1	3000 lbs		..	3000	
Large brackets for chain wheels	4	1000 lbs each			4000	
" " for guide wheels	4	700 lbs each			2800	
Foot step Pedestal for the Vertical shaft	1	600 lbs		..	600	
Chain wheels 3' dr & 6" wide	4	800 lbs		..	3200	
Guide wheels 1' dr & 4" wide	4	100 lbs each			400	
Worm wheel 4' dr & 5" wide	1	900 lbs		-	900	
Total, Cast iron						117100 lbs
Cast Iron Pipe						
For Sluices - 3' internal Dr	4	6'-6"				
Total Cast Iron Pipe						4 pipes
Sluice Valve with Lead stock Complete						
For sluice - 3' Dr; Spindle 42'	2				2	2
Cast Iron pipe bends 8" internal Dr. 90°						
For Regulating Valves	4					4
Conical spindle valves for same 8" Dr.	4					4
Capstan for working the spindle	4					4
Brass discharging Cock 2"	1					1
Ordinary Capstan dr of waist 11"	1					1

96

E. 120.
50,000—24-8-03.

ESTIMATE FORM.—Detail Measurements.

Detail of Work.	Number.	Measurements in Feet. Length.	Breadth.	Depth.	Area or Contents.	Total Quantity of each description of work.
1	2	3	4	5	6	7
Gun metal Casting					tbs	
Bush for roller pins	20	3'-3"	~~7"~~ 8" ext	~~6"~~ 7" int	2493	
Bush for rollers	20	2'-0"	~~8"~~ 9 ext	~~7"~~ 8 int	1773	
For roller pin bearings in brackets	40	2'-0"	6"	1"	1814	
For footstep pedestal	1	110 tbs			110	
For bolts for roller brackets	80	4½ tbs each			360	
Total, Gun metal Casting						~~6550~~ 7165 tbs
Glands of spindles of large valves	2				2	2

Detail of Work.	Number.	Length.	Breadth.	Depth.	Area or Contents.	Total Quantity
Teak wood wrought & put up					c.ft	
For chamber Covering	41	25'-6"	1'	1'-6"	1568.25	
For planking over Caisson including Door	30	$\frac{24+21}{2}$	6"	3"	84-38	
For meeting face in front	1	122	14"	7"	83.03	
For meeting face in rear	1	119	14"	7"	80.99	
For Hinged flap	1	25'-6"	2'-3"	3"	14.34	
Total, Teak wood wrought & put up						1830.99 cft

Bolts & nuts & Rivets — 2500 tbs

Chain 3/4" Stud cable — 2 — 85' — 170 ft

ESTIMATE FORM.—Abstract.

Quantity.	Description of Work.	Rate.	Per	Amount	TOTAL.
1	2	3	4	5	6
		Rs.		Rs.	Rs.
	(Constructing a rolling caisson in front of Periyar Head Sluice) Height 52'-6"; Breadth 24'; width 15'.				
lbs					
196152	Mild Steel Plates	0-1-3	1 lb	15325	
13430	.. .. Flat	0-1-3	1 lb	1049	
673	.. .. Channel	0-1-3	1 lb	53	
15459	.. .. Oblong	0-1-6	1 lb	1449	
139616	.. .. Angles	0-1-3	1 lb	10908	
~~9471~~ 11731 P/r	.. .. Round	0-1-3	1 lb	~~740~~ 916 P/r	
180 Rft	Gas pipes 7/8" diameter internal	0-2-6	1 Rft	28	
117100 lbs	Cast Iron	120-0-0	1 ton	6273	
4	Cast Iron pipe 3' internal diameter (of 6'-6" lengths)	240-0-0	each	960	
2	Sluice valve Head stock complete (valve 3' dr.) (Burn & Co.)	1200-0-0	each	2400	
4	Cast iron pipe bends. 90°. 8" internal dr.	18-0-0	each	72	
4	Conical spindle valves 8" dr.	100-0-0	each	400	
1	Ordinary Capstan - dr. of waist 11"	180-0-0	each	180	
4	Capstan for regulating valve spindle	10-0-0	each	40	
1	Brass, discharging Cock - 2"	15-0-0	each	15	
~~6550~~ 7165 lbs P/r	Gun metal casting	1-0-0	1 lb	~~6550~~ 7165 P/r	
2	Gun metal Glands of spindles of large valves	150-0-0	each	300	
1830.99 cft	Teak wood wrought & put up	4-8-0	1 cft	8240	
25000 lbs	Bolts & rivets etc.	0-2-6	1 lb	3906	
170 Rft	chain 3¼" stud cable	2-0-0	R.ft	340	
	Smiths, Rivetters, Fitters & Turners etc. labour including painting @ 3/4 ans per lb including CI			24300	
	Paint			200	
	Pattern maker's labor - including wood			300	
	Fitting at site			8100	

Carried over ~~Grand Total of Estimate~~ Rs. ~~92128~~ 92919 P/r

~~STATION,~~ ______________

~~Date,~~ ______________ 190 .

~~Executive Engineer.~~

28

(E. No. 123.)

60,000—()-3-93.

CIRCLE—

DIVISION—

DISTRICT—

TALUK (OR ESTATE IN CASE OF ESTATE WORKS).

ESTIMATE FORM.—Abstract.

Financial Head—

Budget Head—

Departmental Head—

Main Head—

Sub-Head—

Project of which
the work forms part—

Section—

Name of Work—

Amount of Estimate, Rs.

To be carried out by—

REFERENCES.

ESTIMATE FORM.—Abstract.

Quantity.	Description of Work.	Rate.	Per	Amount	TOTAL.
1	2	3	4	5	6
		Rs.		Rs.	Rs.
	Brought forward			92919 ~~92126~~	P/R
	Packer			125	
	Centage on labour 10%			2430	
	Forge and machine charges			800	
	Cartage and Railway freight etc. From Madras to Ammayanayakkanur			7525	
	Departmental charges 17%			16364 ~~16232~~	P/R
				Rs 120163 ~~119240~~	P/R
	Say Rs 121000 ~~120000~~ P/R				

Grand Total of Estimate Rs. ~~120000~~ 121000 P/R

STATION, Madras
Date, October 1904

K. F. Stoney 27/10/04
Offg. Gl Supdt. P.W. Workshops
Executive Engineer.

Enclosure to P.W.W.

ROW 36 E.D dy 27/10/04

(E. No. 123.)

60,000—( )-8-03.

CIRCLE—

DIVISION—

DISTRICT—

TALUK (OR ESTATE IN CASE OF ESTATE WORKS).

ESTIMATE FORM.—Abstract.

Financial Head—

Budget Head—

Departmental Head—

Main Head—

Sub-Head—

Project of which
the work forms part—

Section—

Name of Work—

Amount of Estimate, Rs.

To be carried out by—

REFERENCES.

Rule 32
7/1/5

Report accompanying the Estimate for the Caisson in front of the Periyar Head Sluice

---

This Caisson is proposed to be constructed in front of the Periyar Head Sluice to enable repairs to be done to the Shutter, even when the Water is at M.W.L. The height of the Caisson up to the Roadway deck, is 49 feet, being 3'.6" higher than M.W.L.; and the height over the Roadway deck is 3'-6"; the length of the Caisson is 24 feet, having an overlap of one foot on either side; and the width is 15 feet.

The outer plating of the Caisson, is of Mild Steel plates varying in thickness from $\frac{3}{4}$" at bottom to $\frac{3}{8}$" at top. The plating runs horizontally in alternate inside & outside strakes, lap-jointed and single riveted; the vertical butt joints have cover plates double riveted. The plating of the bottom of the Caisson and of the Water tight deck, is each 1" thick. The Angle Irons forming the side frames are $3\frac{1}{2}$" x $3\frac{1}{2}$" x $\frac{1}{2}$", and placed 18" apart; the crossbeams are also angles varying from $4\frac{1}{2}$" x $4\frac{1}{2}$" x $\frac{1}{2}$" at bottom to 3" x 3" x $\frac{1}{2}$" above the Watertight deck fastened with gussets to the side angles. There are 2 rows of uprights dividing the width of the Caisson into 3 parts; they are Mild Steel Angles 4" x 4" x $\frac{1}{2}$" and 18" apart. The Angle irons under the Water tight deck are 6" x 4" x $\frac{5}{8}$" widened

at

the ends and secured to the side frames. Horizontal stringers 15" in width and ½" in thickness are riveted to the cross beams and secured by angle irons 3"×3"×½" to the outside plating & frames. The meeting face of the Caisson is of Teak 14"×7", bedded in red lead and bolted to 4"×4"×½" angles riveted to the Caisson and following the curve of the masonry invert. The planking of the Roadway deck is of 3" Teak boards secured to the deck beams and made watertight by caulking. 2 man-holes are provided, and a 2" brass cock is fixed at the bottom to run off the bilge water.

The Caisson is to be so ballasted as to bear on the keel with a pressure of about 5 Tons, when the water is at the level of the watertight deck, and to keep this pressure uniform, 2 adjusting valves are provided to allow the water to flow into the watertight deck as the water rises above this deck. These valves 8" in Diameter, 2 in front & 2 in rear, for discharging the water. The valves are conical spindle valves of gunmetal with 2" spindles carried to the Roadway deck, the cast iron inlet pipes pass by 90° bends through the watertight deck, and are secured to the outside skin

There are also 2 sluices provided through the Air chamber for allowing water to pass to the other side

of

of the Caisson, so as to rise to the same level on bo[th]
sides before the Caisson is hauled in - The valves are 3
in diameter, of cast iron faced on both sides with gun
metal and connected to the sides of the Caisson by
cast iron pipes 3" in diameter - The spindles pass through
the watertight deck in gunmetal stuffing boxes and
continue up to the roadway deck and are provided
with a headstock.

The keel rollers, which are fixed in the
floor of the chamber, are of cast iron 18" diameter, with
Mild Steel spindles lined with gun metal and working
in gunmetal bearings in cast iron brackets

The Caisson is generally to be in the chamber
and to be hauled to its berth only when required -
The Machinery for hauling the Caisson into & out of the
chamber, consists of 2 endless cable chains, one in each side
attached to the ends of the yoke, which is fastened to the
Caisson by the hauling bar These chains pass round two
loose chain wheels at the Entrance to the chamber & ove[r]
2 chain wheels keyed on to the driving shaft, the slack of
the chain being carried by the chain rollers The driving
shaft is worked by a worm wheel and worm worked
by a capstan above - The Chamber can be converted into a
place by repairing and painting the Caisson, by

placing

Incl. to Drow No $\frac{42}{36}$ E.D. of 27-10-04

placing a temporary gate in the groove shown and pumping out the water in the chamber. Arrangement has also been made to float it out of its berth and place it against an outer meeting face, to enable repairs or renewals of any work in the masonry to be carried on. The position of the Caisson when used thus is shown in dotted lines in the Plan. A roadway also has been provided over the Caisson to which the descent from the Chamber covering must be made by a wooden ladder. The Plans show everything in detail.

The Estimate does not provide for carriage of materials from Ammayanaickanur Railway Station to site at Periyar.

The max. stress has been limited to 5 tons per sqr. inch, throughout the calculations, while Dorman Long & Co allow 6.4 tons per sqr. inch as their lowest working stress. The thickness of the plates in the Caissons illustrated in the Vol: LXV of the Minutes of the Proceedings of the Inst: C.E. is slightly less than what the Formula for plates gives; while the thickness of plates in this Caisson is taken to be greater, the conditions being different in this case.

R. F. Stoney 27/10/04

Madras. 26th October 1904 } Offg. Genl: Superintendent, P.W. Workshops

CHIEF ENGR. FOR IRRIGATION. 28 OCT 1904 No. 4760

Copy pp 22-10-04 Comp

P.W.C. 33 7/11/5

Encls to

105

Calculations for the Caisson in front of the Periyar Head Sluice

Rolling Caisson.

Length of Caisson = 24 feet, allowing an overlap of 1 foot on either side.

Maximum head of Water = 45½ feet

Height of Caisson up to the roadway deck has been taken to be 49 feet and the height over roadway deck 3½ feet.

The height of water tight deck is assumed to be 32 feet; and the width of the Caisson to be 15 feet, which gives a metacentric height nearly equal to that in the 2 Caissons illustrated in the Vol. LXV of the minutes of the Proceedings of I.C.E. as shewn below.

If H = centre of Buoyancy & M. meta Centre, H.M. (the metacentric height = $\frac{AK^2}{V}$;

Where A = area of flotation

K = radius of gyration about the line of Symmetry in that area

and V = Volume immersed

In this case $HM = \frac{15 \times 24 \times \frac{15}{12}^2}{15 \times 24 \times 32} = \frac{15 \times 15}{12 \times 32} = .6'$ nearly

The values of the metacentric height in those two Caissons are .53 feet and .7 feet.

Angles of Frames.

Frames to be placed 18 inches apart taking the 2 feet strip at bottom of the Caisson, where the pressure is the greatest the

pressure on the portion of plate between the frames = $2 \times 1\frac{1}{2} \times 44\frac{1}{2} \times .028$ Tons

$= 3 \times 89 \times .014$ tons

$= 3.738$ tons.

Since this portion is supported on all sides on the top and bottom by stringers and on sides by the Vertical angles, the pressure coming on each side angle is only 1/4 of above, and as the angle takes up 1/4 of the pressure on the adjacent portion also, the total pressure on each angle $= \frac{3.738}{2} = 1.869$ tons

Taking Angles $3\frac{1}{2}'' \times 3\frac{1}{2}'' \times \frac{1}{2}''$

I (moment of inertia) = 2.87 and
C (Greatest distance from the neutral axis of Section)
= $2\frac{1}{2}''$ nearly.

∴ Maximum stress on the angle

$= \frac{1.869 \times 24 \times 5}{8 \times 2 \times 2.87}$ Tons per Square inch

$= \frac{28.035}{5.74} = 5$ tons nearly

∴ The Angles $3\frac{1}{2}'' \times 3\frac{1}{2}'' \times \frac{1}{2}''$ are strong ~~er~~ enough to take up the maximum pressure.

Cross Angles.

Using 2 uprights of $4'' \times 4'' \times \frac{1}{2}''$ across the width of 15 feet, the unsupported length of each Cross angle becomes 5 feet.

Taking $4\frac{1}{2}'' \times 4\frac{1}{2}'' \times \frac{1}{2}''$ Angles.

Gordon's Formula $P = \frac{.3F}{1+KH^2}$ for hinged ends.

(Molesworth Page 122)

$H = \frac{L}{d}$ [Where d = least distance in Cross Section

$= 4\frac{1}{2} \times \frac{1}{\sqrt{2}} = 3$ inches nearly]

= 20 nearly

(10)

$K = \cdot 00033$; $F = 4$ Tons per Square inch; $P =$ Safe Stress per Sq. inch

$\therefore P = \frac{\cdot 3 \times 4}{1 + \cdot 133}$ Tons per Square inch

$\therefore$ The safe load it will bear as Strut —

$= \frac{4 \cdot 25 \times 1.2}{1.133}$ tons $= \frac{5.1}{1.133} = 4\frac{3}{4}$ tons.

But the actual load coming upon it is only 3·738 tons at the bottom.

Hence it is strong enough.

As the pressure decreases as we go up the Section of Cross Angles has been decreased accordingly, from $4\frac{1}{2}" \times 4\frac{1}{2}" \times \frac{1}{2}"$ at bottom to $3" \times 3" \times \frac{1}{2}"$ above water tight deck

Cross Angle just below the water tight deck.

This cross angle takes up a direct as well as a transverse load, due to the weight of water over the water tight deck.

Transverse load.

Weight of water on each cross angle.

$= 15 \times 1\frac{1}{2} \times 13\frac{1}{2} \times 62\frac{1}{2}$ lbs

$= \frac{45}{2} \times \frac{27}{2} \times \frac{125}{2} = 19{,}000$ lbs nearly $= 8\frac{2}{3}$ Tons nearly

$\therefore$ The weight of water over $\frac{1}{3}$rd of its length i.e. 5 feet length $= 2\frac{8}{9}$ Tons.

Taking the Angle $6" \times 4" \times \frac{5}{8}"$;

The NA is at a distance from top given by $\dfrac{\frac{5}{2} \times \frac{5}{16} + \frac{10}{3} \times \frac{53}{16}}{\frac{5}{2} + \frac{10}{3}} = \frac{55}{28} = 2"$ nearly

$\therefore I$ (moment of inertia) $= \frac{4 \times 125}{512} + \frac{5}{2} \times \frac{27}{16} \times \frac{27}{16} + \frac{43}{8} \times \frac{43}{8} \times \frac{43}{8 \times 12} \times \frac{5}{8} + \frac{10}{3} \times \frac{441}{256}$

$= \frac{1500 + 10935 + 12423 + 8820}{256 \times 6} = 22"$ units

and $C = 4"$ $(6" - 2")$

$\therefore \frac{M}{I} = \frac{f}{c}$

$\therefore f$ (max. Stress) $= \frac{26}{9} \times \frac{60}{8} \times \frac{4}{22} = \frac{130}{33} = 4$ tons nearly which is tensile.

Direct load due to water pressure on plate

$= 2\frac{1}{2} \times 1\frac{1}{2} \times 14\frac{3}{4} \times .028$ tons

$= 1.55$ tons.

Using Gordon's Formula to find the stress due to this load, we get $f_2 = \frac{1.55 \times \left\{1 + \frac{18^2}{3000}\right\}}{.3 \times 4 \times 5\frac{5}{6}}$

Since $H = \frac{L}{d} = \frac{60}{3\frac{1}{3}} = 18$; $3\frac{1}{3}$ being the shortest distance (see sketch)

and $5\frac{5}{6}$ = the sectional area

$\therefore f_2 = \frac{1.55 \times 1.108}{1.2 \times 5\frac{5}{6}} = .245$ tons compressive

$\therefore$ the maximum stress $= f_1 + f_2 = 4 - .245 = 3.755$ tons tensile per sq. inch.

Hence the section $6'' \times 4'' \times \frac{5}{8}''$ is amply strong

Thickness of plates.

$T = .05 S \sqrt{D}$

Where. S = Span unsupported by ribs, in feet

D = Depth of submergence in feet

1) For the bottom strip $S = 2'$; $D = 45\frac{1}{2}'$

$\therefore t = .05 \times 2\sqrt{45\frac{1}{2}} = .05\sqrt{182} = .05 \times 13.49 = .675''$

Allowing for rust etc. the thickness of plates is made $\frac{3}{4}''$. As the depth of submergence decreases (i.e.) as we go up the thickness of plates has been decreased; for example

2) For $S = 2\frac{1}{2}'$, $D = 24\frac{1}{2}'$ $t = \frac{.05 \times 5}{2 \times 2}\sqrt{98} = \frac{9.5 \times .25}{4}$

$\therefore t = .6''$ nearly hence $\frac{5}{8}''$ plates are used above that depth.

3) For $S = 2\frac{3}{4}'$, $D = 12\frac{1}{4}'$, $t = \frac{.05 \times 11}{4}\sqrt{\frac{49}{4}} = \frac{.55}{4} \times \frac{7}{2}$

$\therefore t = \frac{3.85}{8} = .48$ } Hence $\frac{1}{2}''$ plates are used above that depth of water

4) For $S = 3'$; $D = 3\frac{1}{2}'$, $t = \frac{.05 \times 11}{4 \times 2\sqrt{14}} = .23$ and $\frac{3}{8}''$ plates are used for the remaining height.

Roller

Roller pin.

The weight of the Caisson together with the ballast must be greater than the force of the buoyancy by 5 tons, so as to give that resultant pressure on the rollers when the Caisson is to be hauled.

The force of buoyancy $= \frac{24+21}{2} \times 15 \times 32 \times .028$ tons

$= 45 \times 16 \times 15 \times .028$ tons

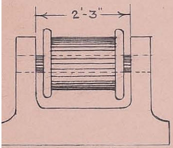
$= 302.4$ tons.

∴ Pressure coming on rollers when the Caisson is not in Water $= 302.4 + 5 = 307.4$ tons

The Caisson stands on 8 Rollers

∴ The pressure on each roller $= 38.4$ tons

The distance between supports $= 2'.3''$



Applying the formula $\frac{M}{I} = f/c$ for bending and taking $f = 5$ tons, we get, since $\frac{I}{c} = \frac{\pi}{4} r^3$,

$r^3 = \frac{38.4 \times 27 \times 4}{8 \times \pi} \times \frac{1}{5} = 3.84 \times 27 \times .3183$

$= 33$

∴ $r = 3.2''$ ∴ Dr of Pin $= 6.4''$

Allowing for wear of Delta metal etc, the pin, with the Delta metal Coating, is allowed to be 8".

Keel.

The total pressure on the keels $= 307.4$ tons

∴ That on each keel $= 153.7$ tons.

Assuming that the portion between the rollers takes up 1/3rd of the whole pressure as there are 3 bays, we get the distributed load on each bay of keel $= 51.2$ tons.

The length of each bay $= 65''$ nearly

Using the formula $\frac{M}{I} = f/c$ for bending.

Since $\frac{I}{c} = \frac{bd^2}{6}$, we get

$f = \frac{51.2 \times 65 \times 6}{8 \times 12 \times 9 \times 9}$ tons per Square inch

I

$) = \frac{208}{.81} = 2.6$ tons per Square inch

Hence it is amply strong.

Hauling Arrangements.

The resistance to the hauling of the Caisson, is due to the resistance of the water and to the frictional resistance on rollers.

1. The resistance of the water

This is given by the formula $R = 1.86 \times D \times \frac{V^2}{2g}$

(Molesworth Page 278)

Where D = density of water = 62½ lbs

V = velocity of hauling in feet per second

Since the worm wheel has a diameter 4' pitch 2¼" there are 67 teeth in it.

Assuming the maximum number of revolutions per minute, of the Capstan to be 15, the velocity of hauling works out to only

.3 feet per second

& R = .2 lbs per square foot

∴ Total resistance = $\frac{45 \times 15 \times .2}{2240}$ tons = .06 ton

2. Resistance on Rollers

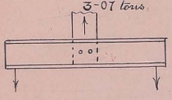
Taking the co-efficient of rolling friction to be $\frac{1}{100}$, the frictional resistance = $\frac{1}{100} \times 5$ = .05 ton

∴ Total resistance = .11 ton only when hauled in water. But the arrangement has been designed for the worst case when it is hauled when the Chamber is dry. Then resistance = $\frac{307}{100}$ = 3.07 tons

Yoke.

This is a Channel of Section 12" × 3½" × 5/8"

The resistance is applied at the Centre



Using the formula $\frac{M}{I} = \frac{f}{c}$ we get

$f = \frac{3.07 \times 240 \times 6}{4 \times 220}$ = 5 tons nearly

nd the 2 bolts of 1" each, are enough as they
ear a load of 7 tons nearly.

Chain.

The hauling force required at each chain = 1.53 tons.

Assuming that the tension on the tight side is double that on the slack side, the maximum tension = 3.06 tons

Hence the 3/4 inch chains, which will bear a tension of 4 tons, are amply strong

Pressure at handle

The diameter of Spur wheel = 3 feet; and the length of handle or where pressure is applied = 1½'

Hence pressure required at handle = $\frac{3.07 \times 2240}{67}$ lbs

= 3.07 × 33.3 lbs

= 102 lbs

Hence three men exerting a pressure of 35 lb each, will be able to haul in the worst circumstances.

In the ordinary case of hauling in water the pressure at handle = $\frac{.11 \times 2240}{67}$ = 4 lb. Hence one person will be able to manage the Caisson easily

Time for hauling.

Assuming the number of revolutions of the Capstan to be 8 per minute, the velocity of hauling = 1.2 feet per minute.

Hence to haul 32 feet, the time that will be taken is $\frac{32 \times 5}{6}$ minutes or 27 minutes, or say ½ Hour.

R. J. Storey 27/10/04

Offg. General Supdt.
P.W. Workshops

Rec 27.10.04

Enclosure to P.W. W.
no $\frac{W}{36}$ E.9 d/ 27/10/04

Proc 35
7/11/5

CHIEF ... FOR IRRIGATION
28 OCT 1904
No. 4760

Stock Form No. 154
5,000—21-7-03.

Public Works (1904.) Department.

CURRENT No. 4811 with R 4760

From

[Name] C. J. USSHER Esquire.,

[Designation] Superintending Engineer, VI Circle,

[Station] Trichinopoly.

No. 802 CE

Dated 31 October 1904.

Enclosures {Plans / Others} Total.

Spare copies

Received } 1.11.04 190

Registered 190

Passed on, by—

Registering Clerk 190

U. R. Clerk 190

Referencer 190

Record Supdt. 190

Drafting Officer 190

SUBJECT.

Periyar Head Sluice. Asking whether chains may be substituted for wire ropes etc.

BACK PAPERS.

2769 of 19.8.04

Papers [illegible] 1/11

FURTHER PAPERS.

FWE 36 / 711/5

1.11.04

To

The Chief Engineer ~~Secretary to Government~~, Public Works Department.

For Irrigation,

MADRAS.

Sir,

With reference to Messrs. Ransoms and Rapiers letter x --- dated 10th March 1904 copy of which was forwarded with your Memo. No. 1126 dated 1st April 1904 and Inspection Notes (x) of the General Foreman Public Works workshops, dated 25th April 1904, I have the honor to request that orders may be issued as to whether chains may be substituted for wire ropes at the Periyar Head Sluice. If so, the necessary estimates will be prepared and submitted for sanction.

x page 19 C. file para 6 of letter

(x) page 36 Current file. portion side-lined 1/3 rd page

I have the honor to be,

Sir,

Your most obedient servant,

[signature]

Superintending Engineer,

VI Circle.

CHIEF ENGINEER FOR IRRIGATION.
1 - NOV 1904
No. 4811.

[initials]
29.10.04

116

No 3706
5.11.04

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

R 4811/04.

DESPATCHED
5-11-1904
ENCLOS.................

Page 113 of C. file

Memo:

In reply to the Superintending Engineer's letter No 802 C.E. dated 31st October 1904, the undersigned has the honour to state that Chains can be used for the counter balanced weights, but not for the roller frames.

[signature]
3/11/04.

[signature]
3-11-04

To
The Supg Engr 6 Circle

[signature] 5/11/04

INDEXED.

Bwe 37
7/11/5

117

Stock Form No. 154
5,000—21-7-03.

Public Works (1904) Department.

CURRENT No. 4889

From

[*Name*] C. J. Usher Esquire

[*Designation*] Superintending Engineer 6th Circle

[*Station*] Trichinopoly

No. 816 CE

Dated 4 November 1904

Enclosures { *Plans* 6 / *Others* } *Total.* 6

Spare copies

Received } 5-11-04. 190

Registered 190

Passed on, by—

Registering Clerk 5. 11. 1904

U. R. Clerk 190

Referencer 190

Record Supdt. 190

Drafting Officer 190

SUBJECT.

Constructing a sluice at water shed cutting at Thakkudy. Submitting sketch showing the site of—

BACK PAPERS.

Paper

FURTHER PAPERS.

118

Key

To

The Chief Engineer / Secretary to Government, Public Works Department.

Sir,

Copy of a letter No.671-S.E. dated 23rd October 04, from M.R.Ry, A.V.Ramalinga Aiyar Avl., Executive Engineer, Madura Division, to the Superintending Engineer, VI Circle, Trichinopoly.

With reference to your No.3012 dated 1st August -- 1904, I have the honor to report that the only site suitable for constructing a sluice is the one at C.S.No.C.C. as shewn in the sketch map and level sections enclosed. No other site is suitable as the ground on either sides falls in level below +152.00.

No. C.E. 816 Enclosures:-6.
2 Tracings Viz., 1 Level section & 1 sketch
4 Level sections received with C.E.No.2467/25-7-04.

Copy submitted to Chief Engineer for Irrigation, - with reference to Memo.No.2467 dated 25th July 1904. If the Kumili Cut is made the flow of water to it can not be - obstructed by blocking the ground on either side of the water shed cutting. The site shown on the tracing is - not open to this objection as water to the cut would -- flow along the low land to the left.

74 of C file

Suptg:Engr's Office,
VI Circle,
Dated 4 ~~October~~ Novr 04.

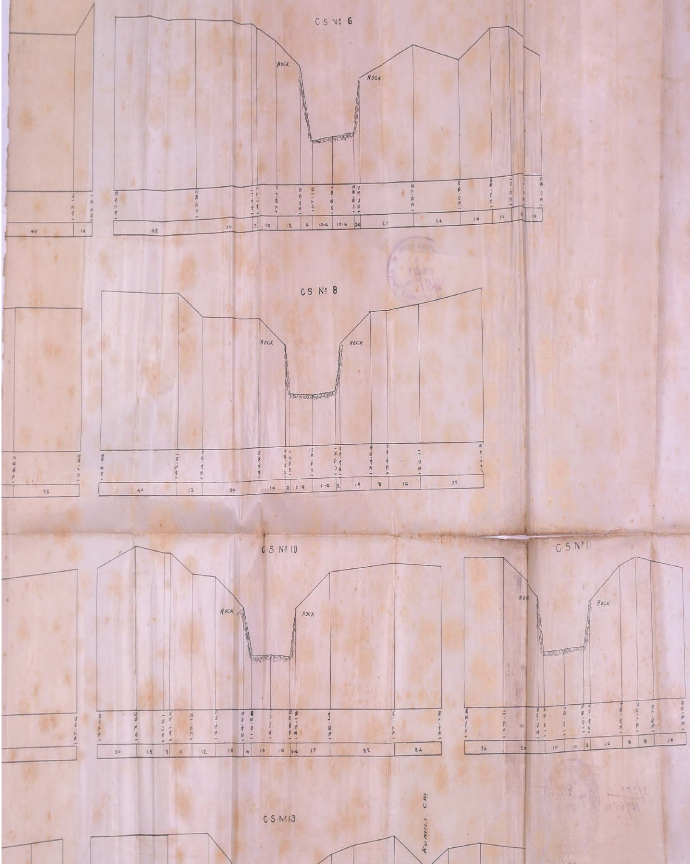
[signature]
Superintending Engineer,
VI Circle.

CHIEF ENGINEER FOR IRRIGATION.
5 NOV 1904
No. 4889.

P.V. 31-10-04

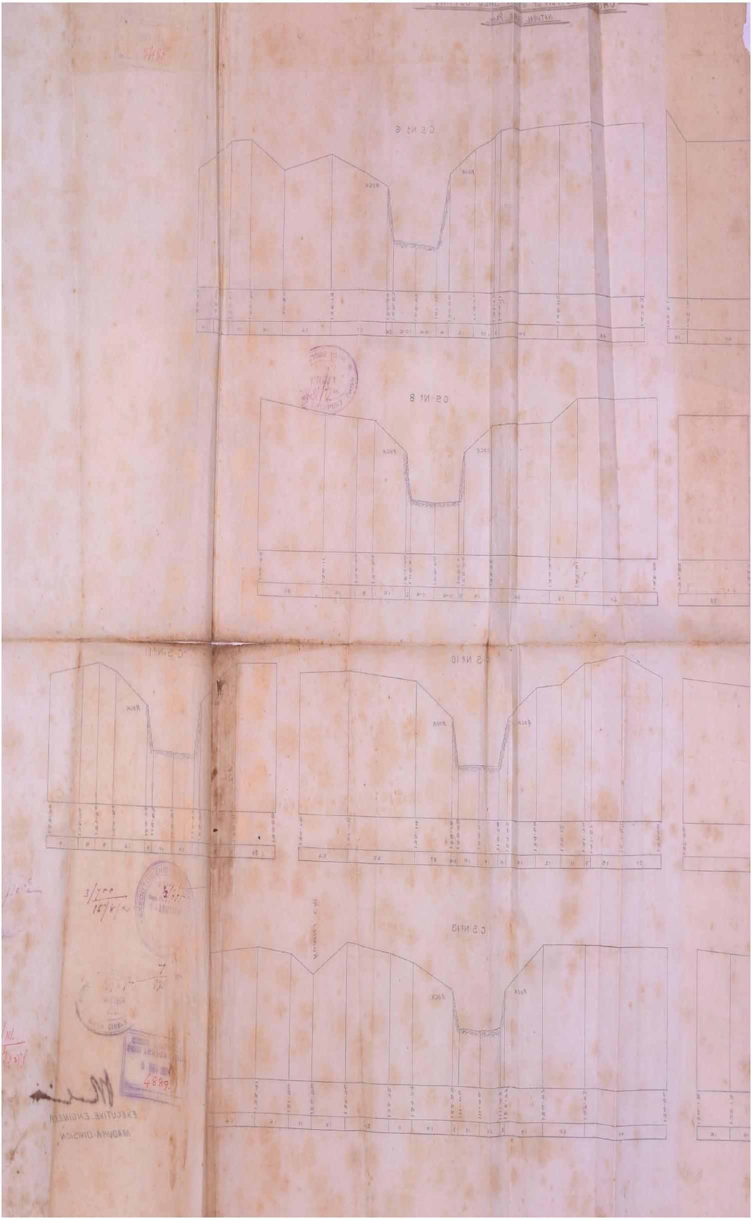
CROSS SECTION OF WATER SHED CUTTING

NATURAL SCALE 1/200



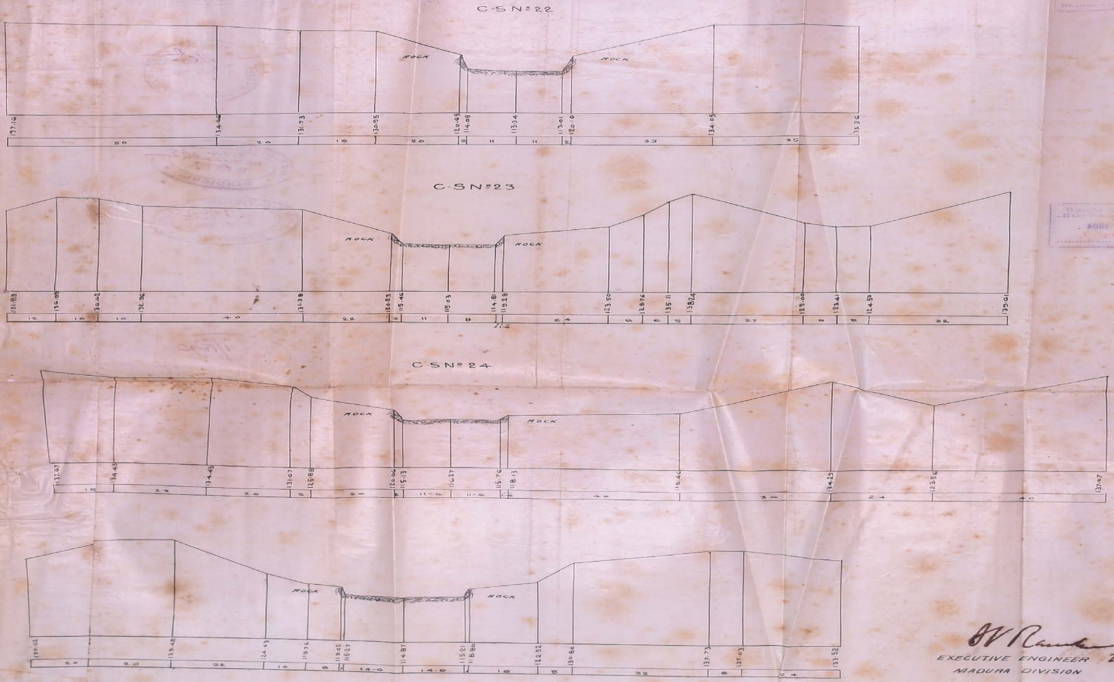
EXECUTIVE. ENGINEER

MADURA. DIVISION


C.S No 6
C.S No 8
C.S No 11
C.S No 10
C.S No 13
ROCK
EXECUTIVE ENGINEER
MADURA DIVISION

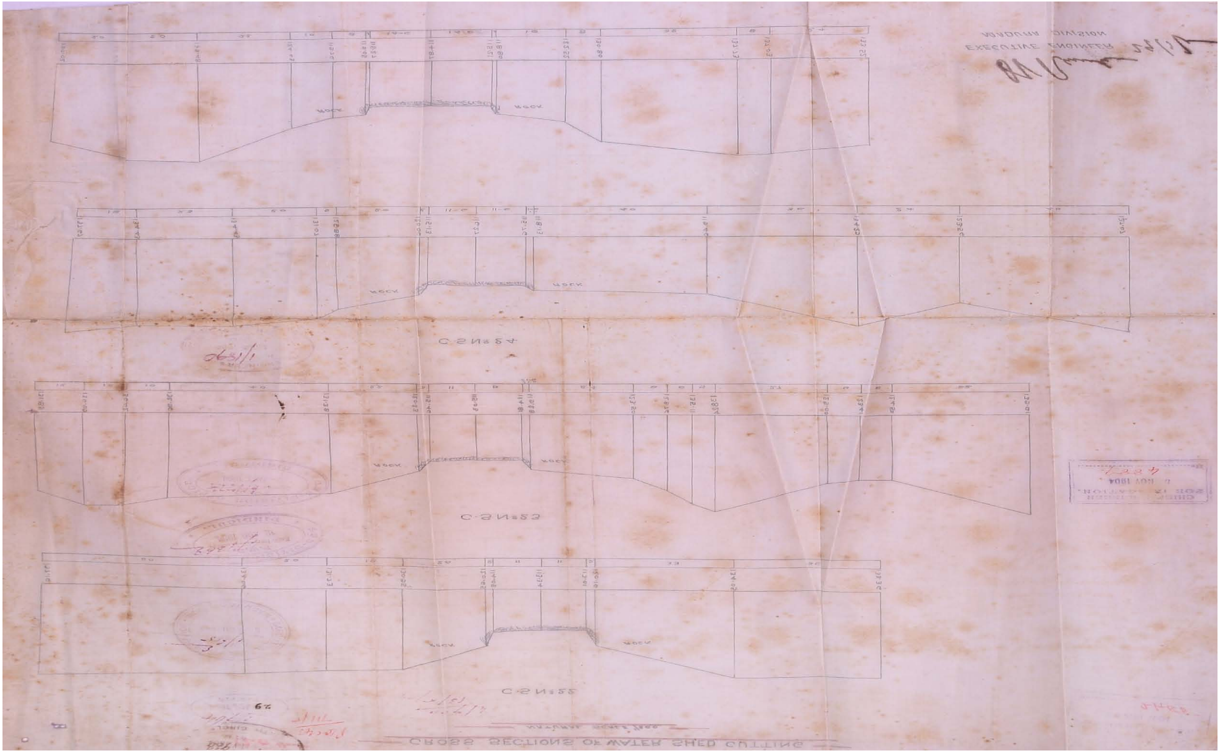
CROSS SECTIONS OF WATER SHED CUTTING

NATURAL SCALE 1/200



EXECUTIVE ENGINEER 24/3/—

MADURA DIVISION

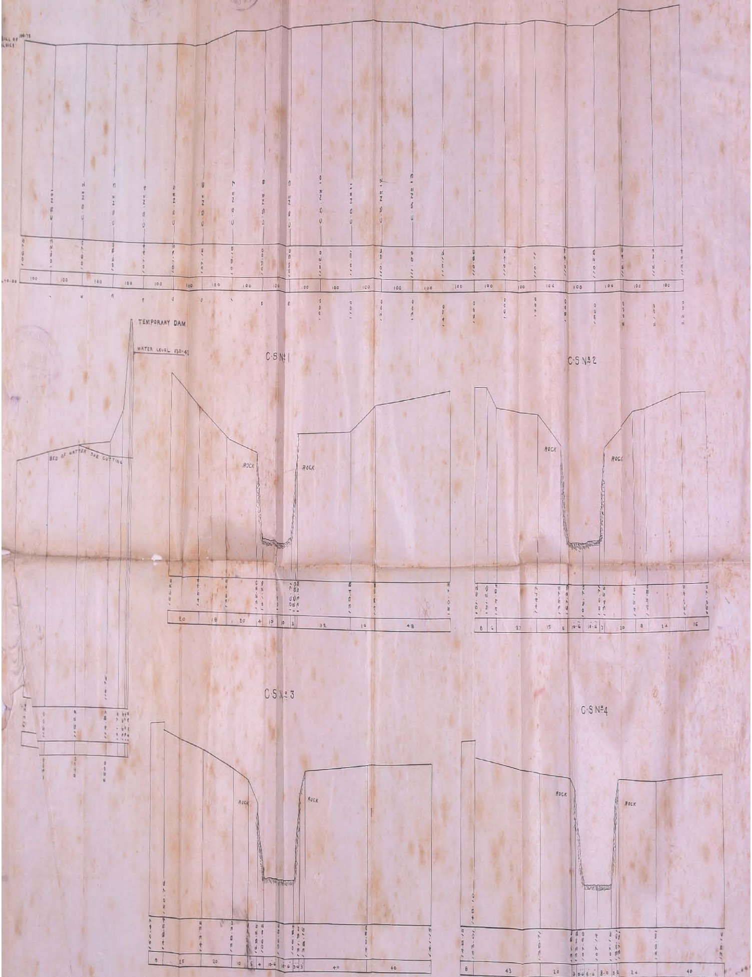

CROSS SECTIONS OF WATER SHED CUTTING
C.S N°22
C.S N°23
C.S N°24
ROCK
EXECUTIVE ENGINEER
MADURA DIVISION
6 NOV 1904

LONGITUDINAL SECTION OF BED OF WATER SHED CUTTING

FROM THEKADY SLUICE TO TEMPORARY DAM

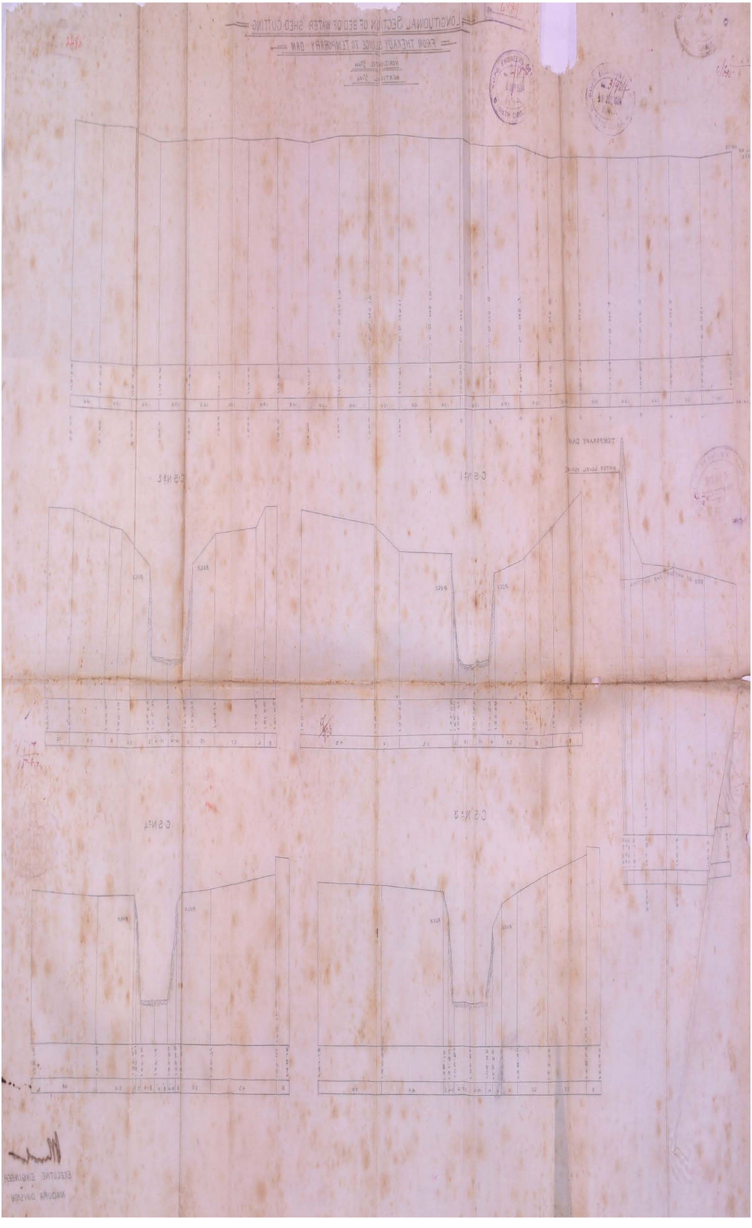
HORIZONTAL 1/1000

VERTICAL 1/100

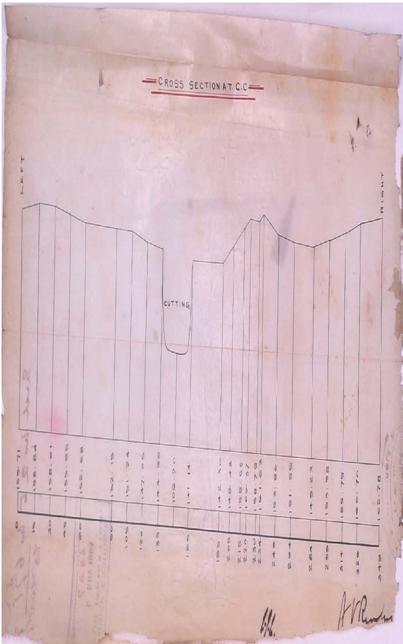


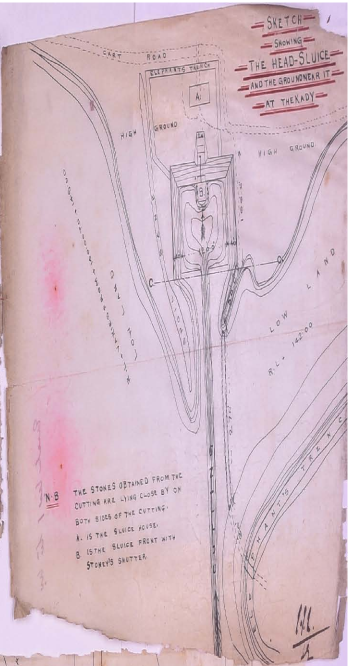
EXECUTIVE ENGINEER

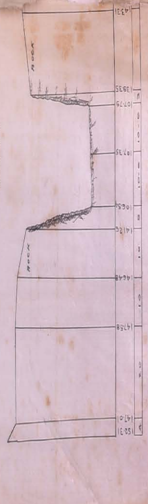
MADURA DIVISION

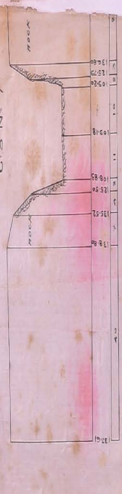


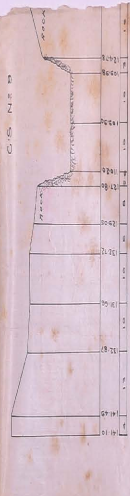
LONGITUDINAL SECTION OF BED OF WATER SHED CUTTING
FROM THEKADY SLUICE TO TEMPORARY DAM
HORIZONTAL 1/1000
VERTICAL 1/100
TEMPORARY DAM
WATER LEVEL
BED OF WATER SHED CUTTING
C.S No 1
C.S No 2
C.S No 3
C.S No 4
ROCK
EXECUTIVE ENGINEER
MADURA DIVISION

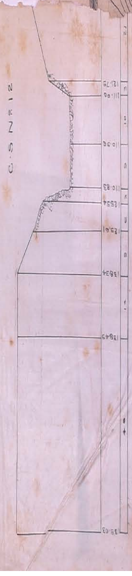

CROSS SECTION AT C.C
LEFT
RIGHT
CUTTING


SKETCH
SHOWING
THE HEAD-SLUICE
AND THE GROUND NEAR IT
AT THE KADY
CART ROAD
ELEPHANTS TRENCH
HIGH GROUND
HIGH GROUND
A
B
LOW LAND
R.L. 142.00
CUTTING
N.B THE STONES OBTAINED FROM THE CUTTING ARE LYING CLOSE BY ON BOTH SIDES OF THE CUTTING.
A. IS THE SLUICE HOUSE.
B IS THE SLUICE FRONT WITH STONEY'S SHUTTER.


C.S No 5
ROCK


C.S No 7
ROCK


C.S No 9
ROCK

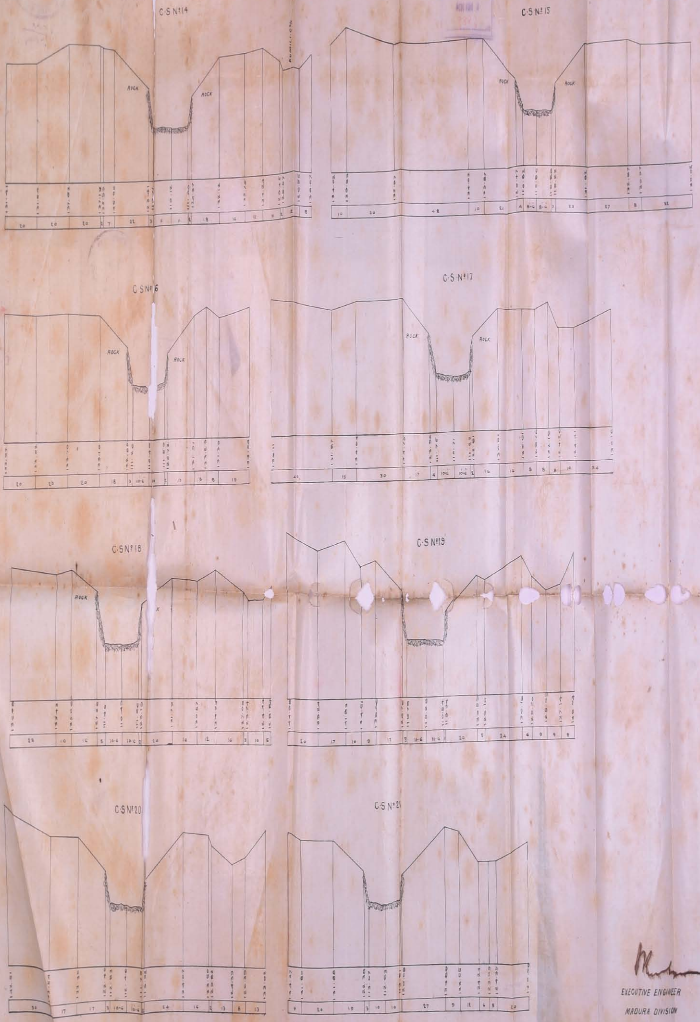

C.S No 12

PLAN SHOWING THE HEAD-SLUICE AND THE GROUND NEAR IT AT THEKADY
CROSS SECTION AT C.C
CUTTING
HIGH GROUND
LOW LAND
EAST ROAD
THE STONES OBTAINED FROM THE CUTTING ARE LYING CLOSE BY ON BOTH SIDES OF THE CUTTING.
A. IS THE SLUICE HOUSE.
B. IS THE SLUICE FRONT WITH STONEYS SHUTTER.
C.S No 5
C.S No 7
C.S No 9
C.S No 12
CHIEF ENGINEER FOR IRRIGATION
1 NOV 1904

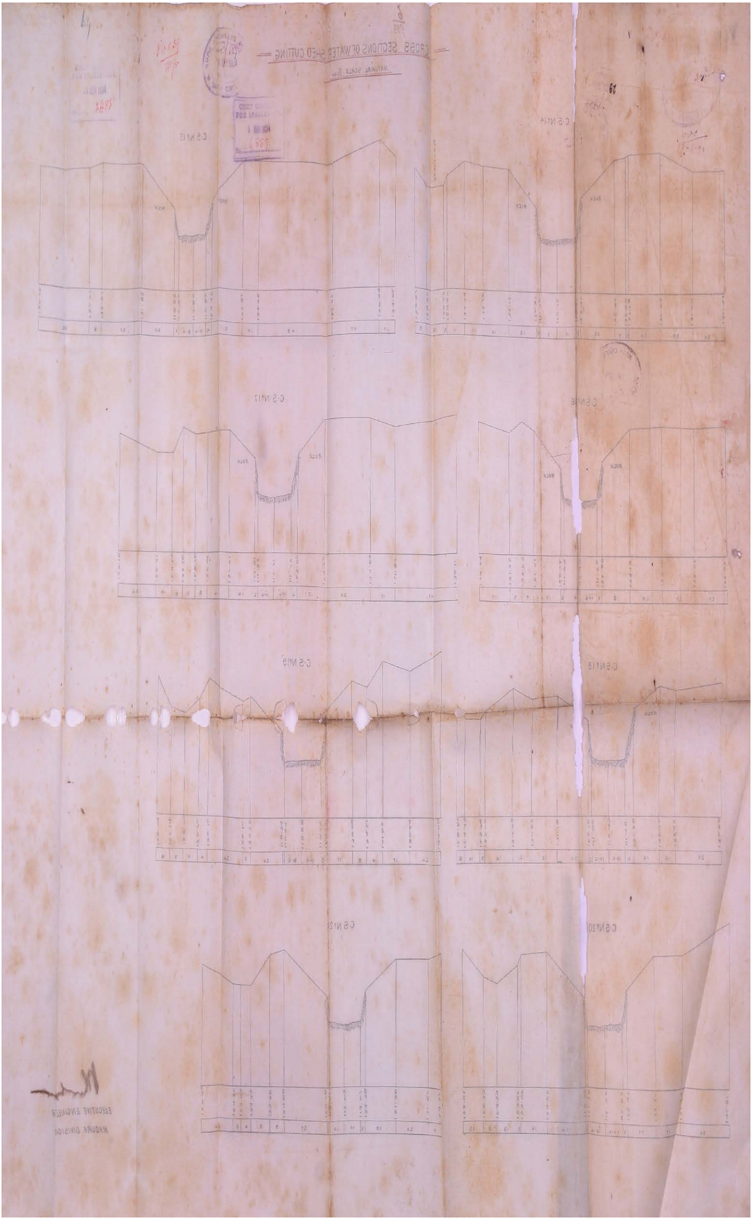
6/783

CROSS SECTIONS OF WATER SHED CUTTING

NATURAL SCALE 1/200



EXECUTIVE ENGINEER
MADURA DIVISION


CROSS SECTIONS OF WATER SHED CUTTING
NATURAL SCALE
C.S No 15
C.S No 14
C.S No 17
C.S No 16
C.S No 19
C.S No 18
C.S No 21
C.S No 20
ROCK
EXECUTIVE ENGINEER
MADURA DIVISION

[E.I./6] 4,000—25-4-04.

121

Public Works (1905) Department.

(IRRIGATION BRANCH.)

CURRENT No. 179

From

[*Name*]

[*Designation*] Ex: Engr. I.W. workshops.

[*Station*]

No. W.E.D. 46

Dated 10.1. 1905.

Enclosures {*Plans* 3, *Others* 1} *Total*

Spare copies

Received 14.1. 1905.

Registered 16 1905.

SUBJECT.

Periyar Hd. Sluice:— Forwards ests + plans for the Constn. of a duplicate Stoney's pattern Shutter for the —

BACK PAPERS.

Plan + Estimate for the necessary masonry works are put up for approval. It would be better if the estimate + plan are sent to the S.E. for verification of rates + plan of existing work.

urgent

FURTHER PAPERS.

123

N.B.—In any future communication on this subject, the number and date of this letter should be quoted.

Q 129/16.1.05

Form No. S. 5.
500—10-2-04.

No. W/46 E.9.

PRESIDENCY PUBLIC WORKS WORKSHOPS,
"Mint Post Office,"
Madras, 10th January 1905.

From

M. Brown, Esq.,
GENERAL SUPERINTENDENT,
PUBLIC WORKS WORKSHOPS.

To

THE Chief Engineer
for Irrigation
Chepauk.

SIR,

Enclosures.
3 Blue Prints (plan)
1. Estimate

* Please see note on last page of abstract Estimate. M.B.

With reference to the construction of a duplicate Stoney's pattern shutter for the Periyar Head Sluice, I have the honor to forward herewith a plan & detailed Estimate for frame work, moveable shutter, and gearing, amounting to Rs10251/- * delivered in these workshops or Rs15,500/- approximately, delivered and erected at Thekady. This amount does not include any masonry work, iron grating, or screen in advance of the shutter, as it is presumed that the existing screen will be fitted in advance of the duplicate shutter if sanctioned. If the estimate meets with your approval and the work is to be taken in hand at once, I request you will be so good as to accord your sanction to the purchase, of such materials as are not in stock, in the local market, to expedite the work. The Wrought Iron

pipe

pipe (25 ft long 5" diameter - ⅜" thick) must however be obtained from England. The time for delivery if this sanction is given will be approximately 3 months from date of order. The Estimate is based on prices of Material at about 140/- a ton for Mild Steel (unwrought) 120/- a ton for Cast iron work. (as it leaves the foundry) ~~work~~. We have received orders in these stores to write down materials to market rates, these rates are not known yet and lists of all materials must be compiled from the Store sub ledgers and sent to Director General of Stores for pricing, this will necessarily take time. I have the honor to request you will however give these shops the chance of carrying out this work as it is the first of its kind under-taken in Madras. I feel almost certain that considerable savings on the Estimate herewith sent can be effected.

This Estimate and plan are for a shutter identical with the one now at Thekady and suitable to with-stand the same head of water.

Wire rope and counterweight box has been provided for, large enough to balance about ¾ of the total weight of the movable shutter.

The thickness of cast iron in various parts may be considered by some, to be in excess of requirements ; please let me have your approval of the dimensions.

I

125

I have the honor to be,

Sir,

Your most obedient servant,

M. Brown 20/1.05

General Superintendent,

P. W. Workshops.

RCC
10/1/05

B.R.

126

59

Public Works Department,
V Circle.

PUBLIC WORKS WORKSHOPS.

From

W. Brown Esquire

GENERAL SUPERINTENDENT,

PUBLIC WORKS WORKSHOPS.

Madras.

To

THE Chief Engineer

for Irrigation

Chepauk

No. W. 3. E.
46

Dated 10
Despatched 10 January 1905.
Received

NO. OF ENCLOSURES. 4

1 Estimate
3 Blueprints (Sent separate)

Subject.

Forwards Estimates & plans for the Construction of a duplicate Stoney's pattern Shutter for the Periyar Head Sluice.

We

127

39.

Please write to Ransome & Rapier who I believe designed the Periyar Hd Sluice, and ask them to tell us what head they intended a shutter to be inserted in the groove in front of the sluice agst a head of 40' or more.

~~They may~~ (we are led to make the enquiry as in Nov last one of the ~~counterweight~~ wire ropes carrying the roller frame broke and the supply for irrigation was interfered with for 10 days.

Had one of the counterweight ropes failed the matter would have been far more serious, and unless it is possible to close the sluice by an outer gate, ~~it is compl~~ an accident might happen which would make it necessary to blow up the sluice rather than lose the crops under it.

They might also let us know what the life of the steel wire ropes usually is and whether it would not be better to use chains.

~~H.G.~~ 11.2.04

Letter drafted and issued to Messrs Ransomes & Rapier as No. 519 D/17-2-04

C.E.

Was this so & did they provide for the groove themselves for temporary shutter. File of correspondence to reqd.

11/2/04

D.E.

The Shutter for the Periyar sluice was designed, prepared & despatched by Ransome & Rapier at a cost of about Rs 15000.

The stockfile in connection with the headsluice as well as the S.E.'s report on the damage due to the wire rope to were taken away by the Camp clerk, who has been asked to return the file as it will be necessary in the camp. Please say if this may be over until the stock file is received from the Camp Clerk.

Yes. We have no need the references it is necessary to know for certain that they provided the groove themselves.

12/2/04.

No. 4 (b)—250—15-10-03.

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

C. No. 1223

From ~~H~~ ~~S~~. No. , dated

D. E. J.

For orders.

28/3/94 E. I.

Ransomes & Rapier's letter does not tell us how to put in the temporary gate when the reservoir is full & Mr Pennell is of opinion that another sluice should be built in the water-shed cutting & that the S.E. should be asked to submit a section of the best site selected by him. This section would be sent to Messrs. R & R for designing the sluice. It should no doubt have a small vent in it so that water may kept at the same level on both sides when operating the temporary shutter.

× Proof put up (Flag Y) From Mr Pennell's inspection notes it is seen that new ~~o~~ ropes for the roller frame will be reqd., but possibly new ropes for the counterweights ~~chain~~ should also be supplied

Submitted that the S.E. may be addressed at once on the two points above. As it will not be possibly to put in the new temp. shutter this year. Has [illegible] reply to the 2nd para

1304

at once.

Insl
28/3/04

Yes. also please remind the Ex: that this dry season must be taken advantage of to put the Sluice in thorough order.— JB
28/3/04.

Already done in memo 642 29/2/04 (Lunkippel)
Insl

4 5 131

P. W.D.Irrigation.

E.I.

On the 29th instant the following telegram was received from the Superintending Engineer VI Circle:- "Baskett's inspection notes Periyar sluice Please cable Ransomes and Rapier to send roller and balance wire ropes". As the file containing Mr.Baskett's Inspection Notes had been sent to Ooty, the telegram was repeated to D.I. In reply the wire placed below has been received. The file stated to have been sent back has just been received. In the concluding portion of the first para of his letter Mr.Baskett states that the roller ropes are likely to fail again and more than a couple of spare ones should always be kept in stock at the sluice house. He also states that the ropes of the counter weight which were supplied by Messrs Richardsons & Cruddas Bombay and sent to Thekady are too large for the grooves and that it is not advisable to use them and that new spare ropes should at once be indented for.

vide linked file

Messrs Ramsomes and Rapier stated in para 8 of their letter dated 10th March 1904 that if it was desired to order spare ropes it would be sufficient if the words "rollers" were cabled and if the word "balance " were cabled they would send out a pair of replace balance weight ropes. For orders if a telegram may be sent accordingly to Messrs Ramsomes and Rapier .

The only question for consideration is whether the ropes being English Stores can be ordered direct from the makers. It would appear from the rules for the supply of stores printed as

~~46~~ 132

appendix 30 to the P.W.D. Code that the stores ~~in question should be ob-~~
in question should be obtained through the India
Office.

For orders.

El

As the cost of each of ropes for the counterweights & a set of ropes for the Roller-frame will probably cost less than Rs 50/- each, submitted that under Exception (d) Appendix 30 para 1. P.W.D. Code, we may obtain the articles direct from the makers. There is no time to spare, & as from previous correspondence with Ransomes & Rapier about the Penyar Head Sluice they will know Vide flag L exactly what is wanted a Draft is put up for approval.

[initials]
4/5/04

2.5.04

I am afraid this is an infringement of the rule, but the case is too urgent to take the risk of possible delay. I have signed the wire.

[initials]
4.5.04

+ Page 59 of current file

7 133

Current R 2485/

D.I. for orders

[illegible] 23.6.03 P. 59 Current file

E.I. for orders

C.S. No 5 would appear to be the best site for the work.
The size of the sluice has to be determined. The existing one is 9'6" x 12'9" in the clear (vide Penyar [illegible] herewith)
S.E. fears that a sluice in the narrow cutting will obstruct the flow seriously when the reservoir is low. The proposed sluice might be made of ample size.
CS No 5 is 500 ft from the existing sluice, but the sides [illegible] abruptly ~~B~~ to 152 on either side. ~~[illegible] the nearer the new sluice to the existing one, the easier it would be to equalise pressures on both sides~~. The sluice might perhaps to be designed so as to be capable of being worked under the full head on the upstream side. The water level as shown in CS No 1 (viz 130·2) is not understood. The present full lake level at dam site is +144 & the proposed will be +152.

M.R.K
22/6/[illegible]

No. 4 (b)—1000—30-3-04.

184

2nd [illegible] (Sect)

Revise sewed Workshops
the sections of the [illegible]
cutting I think we have
already settled [illegible]
[illegible] I have [illegible]
[illegible]

7 135

Librarian (Sect)

Please see if you can find any information re Caissons for Closing Dock Entrances in the Minutes of Proceedings of I.C.E. or elsewhere & let me have the papers soon.

M.R.K.

30/6/04

MEI

Herewith Volumes 65 (p337), 122 (p.343), and 125 (p. 310) are submitted. The pages noted against each Volume contain the required information re-Caissons.

Also, Vol. 130 sent to your office on 10-3-04 for perusal by D.I. Contains the above subject.

WR
5-7-04

Apparently this is
up. This is an abstracted paper of ... little information.

D.C.I.

Submitted

[illegible]
5.7.04

Sent by Registered post

Received & submitted

[illegible]
7.7.04

E.I. Vol 65 page 337 & plates at the end gives the information that you wanted. A sliding Caisson would appear to be the best & workshops might be asked to design the ... work for the Penyar...

M.R.K. [illegible]

P.T.O.

No. 4 (b)—1000—30.3.04.

136 10

Yes. Please send Workshops the sections of the Watershed Cutting. I think we have already settled at which section it would be best to have the caisson. In designing it is to be remembered that we are going to raise F.T.L. by 8 feet.

[signature]

20.7.04

We had better let Workshops have ~~Spec~~ vols 65 & 122.

137[4]

C. No. 3302

D.E.d.

Submitted for orders.

[illegible]

10.8.04

N/e
Send this
down to mark
at once.

Ex. Engineer.

The books were only sent to give some idea of the nature of the work reqd. Sliding caissons were not explained in detail.

As long as the discharge through the new work is greater at all times than that through the present head sluice, it does not seem objectionable to narrow the ventway as proposed. Please see S.E.s letter para 2 (in Current file)

[illegible]

12/8/04

Any contraction of the watershed cutting would mean loss of head at the sluice, and is to be deprecated. Vol 65 has illustrations of the kind of caisson which would answer.

It is believed that the only way of dealing with this important question is by a caisson, and the security

No. 4 (b)—1000—80-3-04.

131

afforded will amply repay the cost whatever it may be.

[signature]

16.8.04

Current No 4760

D. E. I.

The General Superintendent P.W. Workshops has now submitted an estimate of Rs 1,21,000 for a rolling caisson to be constructed in front of the Periyar head sluice. Orders are requested if the estimate may be checked. 1

Orders are also requested on Current No. 4811 in which the S.E. asks whether chains may be substituted for wire ropes at the head sluice. 2

[signature]
2.11.04

(1) to lie over L.O. 115
(2) for orders
[signature]
2/11/04

Chains can be used for the counterbalance weights, but not for the roller frames.

[signature]
2.11.04

D.S.

Memo submitted for approval

[signature]

Page 87 Current

page 113 Current

Flag M.

139

× page 117 C. file

C. No. 4889.

D.E.I.

The S.E. 6th Circle now furnishes the information called for in this office memo

page 73 C. file

No. 2467 d/ 25.7.04 in connection with the

× vide page 3. Current file.

proposal to construct a sluice in the watershed cutting a short distance above the Periyar head sluice.

8/11/04

~~E.I. The replies of the E.E. & S.E. are not definite in fact seem rather contradictory, how is water to flow along the low ground to the Kumili cut, + yet not to the tunnel. I would like to send this to Mr. Keeling who knows the ground well~~

~~JWetc 8/11/04~~

It is all right. I misread the letter. J.S.

R4811

1140

Please send the full plans of the Periar Tunnel (Stoney) Sluice

K.

D.E.

Herewith

[illegible]
9/11/04

Please send to Gen Supdt P.W.Workshops for preparation of estt for duplicate

P.T.O

to dispose of the Revised Estimate of the Peranai Head works.

[illegible]
16/11/04

50

Telephone Message

From

The Chief Engineer for Irrigation

To

The General Superintendent P.W.D. Workshops

Please return plan and sections of the girders of the Bridge at Peranai sent to you on the 12th Instant as they are urgently required.

A copy of the blue print of the Stoney's gate Periyar tunnel follows.

The M.W.L of the lake proposed in the Kumili cut is not traceable in this office as the plans were returned to the S.E.

FWS
16/11/04

[illegible]

Despatched
TR
16-11-04

 P.W.D., Irrigation Branch.

D.I.

3063 / 19.3.04 flag Y

In his Notes[x] of Inspection of the Periyar lake in January last, the E.I. stated that, as the -- counter-weight ropes of the Periyar head sluice had been long in use and any accident to them might -- seriously interfere with the supply for irrigation, it ought to be possible to close the sluice with an -- outer gate when necessary to carry out repairs to the shutter or lifting gear and that for the present year a bund should be placed across the watershed cutting and all the requirements of the sluice -- thoroughly attended to. As it was observed that a groove on the up-stream side of the existing sluice had been provided for a temporary door, the --- manufacturers, Messrs Ransomes & Rapier, were asked[x] to state how it was intended that a temporary door should be inserted against a head of 40 ft or more. In the meantime the Supg. Engineer, 6th Circle, was [redacted] requested in Memo. No.642 dated 29th February x2 1904 to submit an estimate for a sluice in the -- water-shed cutting a short distance above the -- Periyar head sluice, to shut off water when repairing the latter. In their letter[x] dated 10th March 1904 Messrs Ransomes & Rapier stated that it would be impracticable to insert a temporary door in the -- groove against a head of 40 ft. The Supg. Engineer was thereupon informed[x] of this and he was asked to submit a section with description of soil and --- sub-soil of the best site selected by him for a sluice in the watershed cutting referred to in Memo No.642[x] dated 29th February 1904. It was also intimated to him that the section called for would be sent to Messrs Ransomes & Rapier to enable them to

pp 7-8 of c file

p/p 13-14 of c file

pp 17-20 of c file

pp 21-22 of c file

pp 13-14 of c file

design the outer sluice.

With his letter No 431 C.E., dated 9th June 1904, the Supg. Engineer submitted cross sections of the watershed cutting taken at intervals of 100 ft for a distance of 2,500 ft from the head sluice. The Supg. Engineer at the same time stated that he did not think that a sluice could be constructed in the narrow cutting without causing a serious obstruction to the flow of water when the lake was low. It was then decided to adopt a sliding caisson and accordingly a tracing of C.S. 5 submitted by the Supg. Engineer was sent to the General Superintendent, P.W. Workshops, with the request that a design and estimate for such a work might be prepared and submitted. The Supg. Engineer was at the same time requested to report whether it had been ascertained that should a work be built at C.S. No.5, which was observed to be the only suitable site, water would not find its way round the work to the existing sluice.

pp 57-59 of c file

pp 71-72 of c file

pp 73-74 of c file

The General Superintendent stated that he could not find a design of sliding caissons and accordingly proposed to make a gate of 15 ft span, which would be carried on rollers on an overhead platform somewhat similar to the lock gates at the Assouan dam. He was informed in Memo. No.2769 dated 19th August 1904 that any contraction of the watershed cutting would mean loss of head at the sluice and was to be deprecated, and that Vol.65 of the Proceedings of the Institution of Civil Engineers, which was forwarded, had illustrations of the kind of caisson wanted. He was further informed that the only way of dealing with the question was by a caisson and that the security afforded by this work would amply repay the cost whatever it might be. With his letter No.W/36 E.I., dated 27th October 1904, the General Superintendent submitted plans and estimate for a rolling caisson which was considered preferable to the sliding caisson, as the rollers possessed the advantage of acting as guides to keep the caisson in the centre of the

pp 81-82 of c file

p 85 of c file

p 89 of c file

berth and chamber while the sliding caisson had no such guides. This estimate was ordered to lie over.

p 119 of c file

With his endorsement x No.816 C.E., dated 4th November 1904, the Supg. Engineer forwarded with sections a letter from the Executive Engineer, -- Madura division, reporting that the only site --- suitable for constructing a sluice was the one at C.S.No. C C. The Supg. Engineer stated that if the Kumili cut was made, the flow of water to it -- could not be obstructed by blocking the ground on either side of the watershed cutting and that the site shown on the tracing was not open to this --- objection as water to the cut would flow along the low land to the left. This paper was submitted to - D.E.I. and it appears from the slip x attached that the General Superintendent was asked personally to -- prepare an estimate for a duplicate of the Periyar head sluice. A copy of the plan of Stoney's gate was sent to him on the 16th instant as ordered and he was informed that the M.W.L. of the lake proposed in the Kumili cut project, which was also ordered to A be intimated to him, was not traceable in this office as the plans of this project had been returned to the Superintending Engineer. No other orders have been passed.

x placed below.

p 15 of note file

A Get the information at once & send to Gen Supdt if he has not yet got it. I did not know in what connection the remark was made, in the telephone message.

J.W.M.

E.I. tells ~~[illegible]~~ M.W.L. is being raised 4 feet above present M.W.L. Estl for

[illegible] 23/12/04

155

shutter is urgently reqd the masonry work will be done here.
The S. E. IIIrd circle should be informed that a duplicate of Stoney's shutter will be fixed in front of the existing one & that collection of dressed stone may be commenced

[illegible]
23/12.

If my Inspection notes referred to had been consulted, it would have been seen that when the Escape Regulator is built F.T.L will be raised 8 feet, ~~M.W.L~~ is ~~not affected~~ which is the extra head the present shutter, and the new one to be provided, will have to take. Of course we cannot raise M.W.L. "

What is meant by the "M.W.L of the Ponga lake proposed to be adopted in the Kurnuli Cal Project" is beyond me. M.W.L ~~[illegible]~~ is fixed, and there will be a regulator across the Cal. There seems to have been misunderstanding & delay

[illegible] 25.12.[illegible]

156 Telephone Message

From
The Manager
Office of Chief Engr. for Irrign.

To
The General Superintendent
P.W. Workshops

Sir

Please intimate when the Estimate for the duplicate of Stoneys' Shutter to be fixed in front of the Existing one Periyar head sluice may be expected in this office.

Sill of the head sluice	= 106.75
Present F.T.L of the lake	= 144.00
Proposed F.T.L — do —	= 152.00
Present plat form level	= 156.25

[initials]
9.1.05

Despatched
TR

158

[P. W. 133. 2,000 16-7-04.]

PUBLIC WORKS SECRETARIAT, CHEPAUK, MADRAS.

TELEPHONE MESSAGE.

Date	Hour	Date	Hour
From G.S. P.W.W. To M.E.I.		From The Manager Office of Chief Engineer for Irrigation To The General Supdt P.W. workshops	

MESSAGE.

The estimate & plan of shutters will be sent to you before 4 pm tomorrow evening by special messenger.

The design is to withstand the same pressure of the existing one. Please let me know the price of Stoney Shutter delivered at Madras Harbour.

CEI

[initials] 9/1/05

REPLY.

Your telephone dated 9-1-05

The Cost of Stoney's Shutter delivered at Madras amounted to nearly £ 800.

The Stoney's Shutter has been designed to withstand water pressure due to a depth of 48¼ ft over sill of head sluice; i.e with M.W.L at 155.00

[initials] 10.1.05

Despatched
TR
10-1-05

[initials] 10/1/05

OVER

Note for orders

In ~~my~~ the Inspection Notes of the Chief Engineer Irrigation dated 19.3.1904 printed with G.O. No 306 I pointed out that it was absolutely necessary to have it in our power to carry out without delay any repairs that might be required to the gate or lifting gear of the Periyar Head Sluice.

2. In consequence of the failure of one of the 2 ropes carrying the roller frame the supply through the sluice was interfered with for 10 days in Oct 1903, and if this accident had occurred early in the season it would have been far more serious. The failure of the counterweight ropes ~~would~~ might have ~~result~~ ~~in the~~ most disastrous results, and it is high time that something was done to make the position one of greater security.

3 Several methods of effecting this have been considered, and Messrs Ransome and Rapier who designed the head sluice and gate, have been consulted.

p 17 C-Feb 4 They admit that with the great head to be dealt with it would be impossible with the sluice discharging to insert a temporary shutter in the groove provided for the purpose.

5. Closing the cutting ~~water shed~~ by a caisson was then thought of and an estimate prepared, whereas the erection of

that towers on either side of the cutting, from which a lift gate could be worked. Ultimately it was decided that the cheapest and most effective arrangement would be to build another sluice in front of the existing one. The new sluice would be of exactly the same design as the existing one and would be ~~[illegible]~~ fitted with a gate after Stoney's pattern made in the workshops.

7 An estimate for the sluice and gate is submitted and permission is requested to put the work in hand in anticipation of the Govt of India's sanction.

If ~~this is [illegible]~~ work can be started at once it is hoped that the new sluice and gate might be completed during the next closure. Money is available for the work, from the allotment for minor works at Bezwada(?)

6. The present sluice designed by Messrs Ransome & Rapier was ~~designed~~ calculated to take water pressure with lake level at 155.00. ~~Water [illegible]~~ Although we are going to ~~[illegible]~~ raise F.T.L by 8 feet ~~there will be no interference with~~ the M.W.L. ~~(155.00)~~ 155.00 ~~with~~ will not be raised. On the cutting, with the powerful escape to be built the lake level is not likely to rise to 155.00. The new sluice & gate therefore are of ample strength.

[illegible] 17.1.05

see

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PUBLIC WORKS DEPARTMENT,

IRRIGATION BRANCH.

READ the following:—

Current No. , dated , from

Circulated to H.E.

FOR ORDERS.

y

In my Inspection Notes printed with G.O., No.306-I dated 19th March 1904, I pointed out that it was absolutely necessary to have it in our power to -- carry out without delay any repairs that might be required to the gate or lifting gear of the Periyar Head sluice.

In consequence of the failure of one of the ropes carrying the roller frame, the supply through the sluice was interfered with for 10 days in October 1903, and if this accident had occurred early in the season it would have been far more serious. The failure of the counterweight ropes might have most disastrous results, and it is high time that somethin was done to make the position one of greater security

Several methods of effecting this have been -- considered, and Messrs Ransomes & Rapier who designed the head sluice and gate, have been consulted.

p. 17 current file They admit that with the great head to be -- dealt with it would be impossible with the sluice discharging to insert a temporary shutter in the -- groove provided for the purpose.

Closing the water-shed cutting by a caisson was then thought of and an estimate prepared, likewise the

E. I. Form No. 1 (b) 500—7-4-04.

erection of steel towers on either side of the -- cutting, from which a lift gate could be worked. Ultimately it was decided that the cheapest and most effective arrangement would be to build -- another sluice in front of the existing one. The new sluice would be of exactly the same design as the existing one and would be fitted with a gate after Stoney's pattern made in the Workshops.

The present sluice designed by Messrs Ransomes & Rapier was calculated to take water pressure with lake level at 155.00. Although we are going to raise F.T.L. by 8 feet the M.W.L. (155.00) will not be -- raised. On the contrary with the powerful escape to be built the lake level is not likely to rise to 155.00. The new sluice and gate therefore are of ample strength.

P 123 of C file

An estimate for the sluice and gate is submitted and permission is requested to put the work in hand in anticipation of the Government of India's sanction.

If work can be started at once it is hoped that the new sluice and gate might be completed during the next closure. Money is available for the work, from the allotment for head works at Bezwada.

[signature]
17.1.05

JWLS
D. 9.
17/1/05.

There is no doubt about the necessity but we had better get India's sanction before commencing work. If we ask for sanction by telegraph and the Chief Engineer

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write d.o to Mr. Preston and explaining the situation we ought to get the sanction within a week. The CE may say that I attach very great importance to the immediate commencement of the work.

[signature]
18-1-05

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PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

P.W. Ortr. 711
Recd. 21.1.05
Enclo: 43 (5 plans)

PROCEEDINGS OF THE MADRAS GOVERNMENT.

READ the following

From the Supg. Engineer, VI Circle, dated 26-10-03, No.851 M.D.
To ------------------do------------------ 3-11-03.
To Messrs Ransomes & Rapier dated 17-2-1904, No.519.
From the Supg. Engineer, VI Circle, dated 17-2-04, No.158 C.E.
To ------------------do------------------24-2-04, No.597.
To ------------------do------------------29-2-04, No.642.
From Messrs Ransomes & Rapier, dated 10th March 1904.
From the Supg. Engineer, VI Circle, dated 28-3-04, No.156 E.I.
To ------------------do------------------1-4-04, No.1126.
From Messrs Ransomes & Rapier, dated 6th April 1904.
To the Supg. Engineer, VI Circle, dated 1219 No.7-4-04.
From ------------------do------------------ 12-4-04, No.300 C.E.
To ------------------do------------------ 22-4-04 No.1397.
From the General Superintendent, P.W.Workshops, d/25-4-04, No. W.C.I./6
From ------------------do------------------25-4-04 No. W.C.I./7
To ------------------do ------------------28-4-04 No.1488.
From the Supg. Engineer, VI Circle, dated 28-4-04, No.332 C.E.
To ------------------do------------------ 10-5-04, No.19-0.
To Messrs Ransomes & Rapier dated 25-5-04, No.40-0.
From the Supg. Engineer, VI Circle, dated 9-6-04, No.431 C.E.
From ------------------do------------------ 11-7-04, No.498 C.E.
To ------------------do------------------ 15-7-04, No.147-0.
To the General Supdt. P.W.Workshops, dated 25-7-04, No.2466.
To the Supg. Engineer, VI Circle, dated 25-7-04, No.2467.
From ------------------do------------------ 5-8-04, No.567 C.E.
From the General Superintendent, P.W.Workshops, dated 6-8-04, No.W/30 E.I.
To ------------------do------------------19-8-04, No.2769.
From ------------------do------------------27-10-04, No.W/36 E.I.
From the Supg. Engineer, VI Circle, dated 31-10-04, No.802 C.E.
To ------------------do------------------ 3-11-04, No.3706.

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From the Supg. Engineer, VI Circle, dated 4-11-04, No.816 C.E.

From the General Superintendent, P.W.Workshops, dated10-1-05,No.W/46 E.I.

Note by the Chief Engineer
for Irrigation.

In the Inspection Notes of the Chief Engineer for Irrigation printed with G.O., No.306-I, dated 19th March 1904 it was pointed out that it was absolutely necessary to have it in our power to carry out without delay any repairs that might be required to the gate or lifting gear of the Periyar Head sluice.

2. In consequence of the failure of one of the ropes carrying the roller frame, the supply through the sluice was interfered with for 10 days in October 1903, and if this accident had occurred early in the season it would have been far more serious. The failure of the counterweight ropes might have most disastrous results, and it is high time that something was done to make the position one of greater security.

3. Several methods of effecting this have been considered, and Messrs Ransomes & Rapier who designed the head sluice and gate, have been consulted.

4. They admit that with the great head to be dealt with it would be -- impossible, with the sluice discharging, to insert a temporary shutter in the groove

Form No. 1—500—13 10-04.

172 3.8

provided for the purpose.

5. Closing the water-shed cutting by a caisson was then thought of and an estimate prepared, likewise the erection of steel towers on either side of the cutting, from which a lift gate could be worked. Ultimately it was decided that the cheapest and most effective arrangement would be to build another sluice in front of the existing one. The new sluice would be of exactly the same design as the -- existing one and would be fitted with a gate after Stoney's pattern made in the P.W.Workshops.

6. The present sluice designed by Messrs Ransomes & Rapier was -- calculated to take water pressure with lake level at 155.00. Although we are going to raise F.T.L. by 8 feet, the M.W.L.(155.00) will not be raised. On the contrary with the powerful escape to be built, the lake level is not likely to rise to 155.00. The new sluice and gate therefore are of ample strength.

7. An estimate amounting to Rs 32,000/- for the sluice and gate is submitted. It is recommended that it may be approved and forwarded to the Government of India, who may be requested to communicate their sanction by wire, ~~to accord permission to put the work in hand in anticipation of their sanction.~~ If the work can be started at once it is hoped

that the new sluice and gate might be completed during the next closure. The Supg. Engineer, II Circle, has recently surrendered a sum of ₨79,000 from the grant under "49" for the Kistna delta. A portion of this amount can be transferred to meet the outlay on this work during the current year.

8. The work is classed as --- "unremunerative" and will probably be completed by the 31st March 1906.

Order thereon. No. 45 I of 19-1-05

Irrign. Acct

The ~~xxxx~~ estimate amounting to ₨ 32,000/- or ₨ 39,360/- including the charge for establishment for constructing a sluice in front of the existing head sluice, Periyar Project, is approved.

2. Ordered that a copy of these Proceedings together with plans and estimates for the sluice be forwarded to the Government of India with a request that sanction thereto may be communicated by wire.

Endorsement. No. 46 I of 19-1-05

Forwarded.

JWD 19/1/05.

DESPATCHED
19 JAN 1905

To
The Chief Engineer for Irrign.
,, Supg. Engineer, VI Circle.
,, Examiner, P.W. Accounts.
,, General Superintendent,
P.W. Workshops.

DESPATCHED
24 FEB 1905